AMERICAN GAS ASSOCIATION MONTHLY

March 1927

Volume IX Number 3

Northwestern University Responds to the Demands of An Important Business
By HERBERT B. DORAU

Research in Vital Technical Problems
By WALTER C. BECKJORD

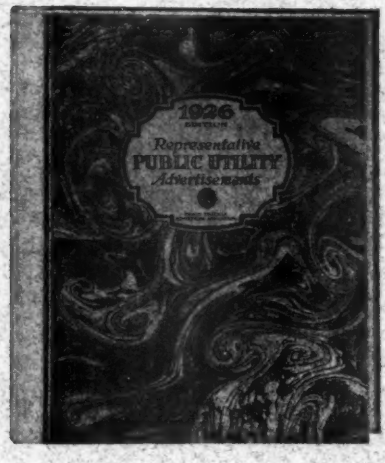
National News Makes Local Copy
By LOIS UPSHAW

Refrigeration—A Challenge to Our Industry
By CYRUS BARNES

If It's Done With Heat, A Slogan Is Needed

Analysis of Report of Bureau of Standards on Effects of Soils on Pipe Materials
By W. H. B. GARDINER

Five Hundred
Public Utility
Advertisements



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The American Gas Association has purchased a limited number of copies for re-sale to its members. The price is $5.00 a copy plus 25 cents to cover mailing. Our selling price is the exact cost billed us.

Place your order promptly

"The Future of the Gas Industry"

By Geo. B. Cortelyou

President, Consolidated Gas Company of New York

UNDER this title, Mr. Cortelyou discusses the present position and future outlook for our business. Here is an article that every executive, every employee and every director should read. Furthermore, copies should be sent to bankers, prominent business men, heads of local civic organizations and others.

Nearly two hundred thousand copies have already been distributed.

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Place Your Order Now—

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AMERICAN GAS ASSOCIATION MONTHLY

342 MADISON AVENUE, NEW YORK, N. Y.

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For statements and opinions contained in papers and discussions appearing herein, the Association does not hold itself responsible.

Entered as Second Class Mail Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

Our Own Who's Who

XXII

Charles Joseph Ramsburg

BORN, Washington, D. C., 1877. Educated in public schools of Washington, and at Cornell University, specializing in chemistry for three years at the latter. Entered employ of the United Gas Improvement Company in 1898, as cadet engineer. Was successively works chemist and superintendent of station "B", Philadelphia Gas Works. In 1904 became assistant engineer of Philadelphia Gas Works. In 1911 spent some time in Europe making a special study of developments in coal gas manufacture. In 1913 left employ of The United Gas Improvement Company to become Vice-President of the Koppers Company. With the formation of The Koppers Company by Pittsburgh interests in 1915 he became Vice-President of the new company, which position he has held since that time. He has contributed numerous papers to the meetings of the American Gas Association and the American Gas Institute. In 1909 he was awarded the Beal Medal for a paper on hydrogen sulphide removal.

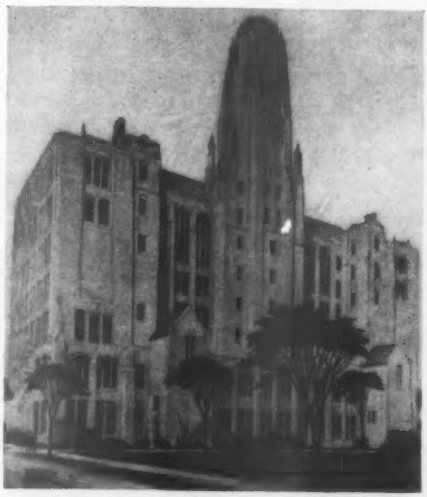
AMERICAN GAS ASSOCIATION MONTHLY

Vol. IX MARCH, 1927 No. 3

Northwestern University Responds to the Demands of An Important Business

By HERBERT B. DORAU
Northwestern University School of Commerce

A RISING plane of business conduct in any industry is usually accompanied by the development of courses of instruction in those fields. It was in response to the rising demand for courses in the economic and business aspects of the public service industries, that Northwestern University School of Commerce inaugurated such a program of instruction.



Wieboldt Hall of Commerce, the recently completed Northwestern University School of Commerce Building

University training for business in general is of rather recent origin and it is only during the last four or five years that any considerable attention has been given to this particular field of public utility economics. Previous to this time, professional training for the public service industries consisted largely in the pursuit of a technical or engineering education. More recently the business and economic problems of these industries have become relatively more important and with that change there has been a quickened interest in educational work along business and economic lines. There has developed the need and there is now developing the opportunity for professional business training for the peculiar tasks of management in the public service industries of the country.

Located as Northwestern University School of Commerce is, in the second largest urban center and a most important center of public utility operation and management, it was both logical and possible to undertake the development of an

intensive and varied program of instruction in this new field of study.

During the present academic year instruction is offered in ten different public utility courses open to undergraduates and five additional courses exclusively for graduate students. Because of the current interest in these courses among leaders in the industry and in the schools which are contemplating the introduction of courses in public utility economics, a brief statement of the way in which this curriculum is organized may be presented here.

The basic year's work in this curriculum consists of a one semester course in the *Economics of Public Service Industries* followed by a second semester course in *Public Utility Regulation*. Four more specialized courses are offered under the titles: *Public Utility Finance, Public Utility Law, Public Utility Operation* and *Public Utility Management Problems*. The last mentioned course is the final course in the undergraduate curriculum and in it the business case method of study is used. This the student enters after having completed the various courses in order to afford the student training in synthesis and the formulation of business judgment. The large part which accounting has in public service industry administration is recognized in this curriculum in the form of four courses dealing specifically with public utility accounting.

Graduate study of the economic prob-

(Continued on page 175)

Customer Ownership—A Valuable Asset

It Has Done and Is Doing an Important Work in an Important Way

C. R. Stull

CUSTOMER ownership has done more to strengthen the position of the gas industry in the modern system of economic and political life than any other activity the industry has carried on during the past few years, according to C. Rodman Stull, of The United Gas Improvement Company, Philadelphia, Pa., and chairman of the Customer Ownership Committee of the American Gas Association, in a recent interview.

"Senior financing has been accomplished at a lower expense as a result of increasing the equity back of the senior securities," he said. "The morale of employees has been improved, labor turnover has been reduced, both of these conditions being influences of tremendous value in developing the right kind of executives to guide the industry during the future. The advance in public understanding, a result of customer ownership, is an asset to our industry of inestimable value.

"It is the purpose of the Customer Ownership Committee of the A. G. A. to function along definitely constructive lines. Its program of activity must impress upon the executives of the gas industry the necessity of continuing and even broadening customer ownership work. Our executives must not lose sight of the fact that it is a major part of our every-day business.

"Customer ownership saved the day for many companies in a great emergency. With this to its everlasting credit, accomplished by hastily organized forces, can we not visualize its future possibilities as a result of consistent studied development? Customer ownership must not be relegated to a minor role, if our industry is to grow in public confidence and esteem. To repeat and to emphasize, 'it is an asset of inestimable value.'"

"If It's Done With Heat" A Slogan Is Needed

Some Suggestions for New Slogans and Two Points of View About the Present One

THE industry is thinking about changing its slogan. An editorial in the February issue of THE MONTHLY was an official plea for suggestions concerning a new slogan and opinions about the present one.

Many new slogans have been suggested as a result. There have also been many requests to leave the present slogan alone. Some feel that "If it's done with heat, you can do it better with gas" is too long, that the "if" denotes weakness. Others feel that a great deal of money has been used to popularize the slogan, and there is no pressing need to change it.

Gas
an aid to
Quantity Production
"A chain is as strong as its weakest link."
You use automatic machines. You employ quantity methods of production. But how about your fuel?
Remember this. Any uncertainty in the application of heat, strikes at the very heart of quantity production!
Automatic machines call for automatic fuel. Gas is just that. It is 100% controllable. With gas, you can increase or decrease the quantity of heat—instantly—to suit the exact speed of production.
The result is maintenance of production schedules, uniformity of product, and fullest economy. Have you yet investigated the merits of gas for your plant?
Write to the American Gas Association for information on what gas is doing for others in your line of business.
American Gas Association
342 Madison Avenue, New York City
Write for our interesting book, "Gas—the Ideal Factory Fuel"
YOU CAN DO IT BETTER WITH GAS

This advertisement, appearing in the April trade journals, shows how the present slogan is being used

Two points of view are presented in this issue of THE MONTHLY: One by Alfred Fischer, director of the Michigan Committee on Public Utility Information, and the other by John F. Weedon, supt. of advertising, The Peoples Gas Light and Coke Company.

Some of the slogans offered as suggestions are as follows:

You can't beat gas heat.
It's done better with gas.
Yours truly—gas.
If you only knew all gas can do.
Gas knows no *no*.
Do it better with gas.
Better do it with gas.
Can't beat gas heat.
Gas heat can't be beat.
How d'ye do without gas.
Gas is your obedient servant.
Use gas as fuel—not fuel as gas.
Why don't you use gas?
Gas is up to you.
Use gas for complete heat.
Heat it hotter with gas.
Heat 'er up with gas.
G-a-s — but it's hot.
Gas is the short cut to heat.
Get gas and you get heat.
The glow of gas heats the mass.
Gas is just rarin' to glow.
Gas is yours to command.
Gas at command of the hand.
Where there's gas there's heat.
Heat it with gas, of course.
No muss or fuss with gas heat.
Gas heats heat hotter.
A few feet of gas for the big feat of heat.
Heat it the better way—with gas.
Heat with gas.
Heat by pipe line.
Gas heat serves you best.
Heat the best way—with gas.
Heat it with gas.
Gas heat is the best heat.
When heat is needed—the gas way is the best way.

We All Do Better When We All Use the Slogan "You Can Do It Better"

By JOHN F. WEEDON
The Peoples Gas Light and Coke Company

John F. Weedon

IN September, 1921, The Peoples Gas Light and Coke Company, of Chicago, invited the public to submit suggestions for a slogan suitable to the gas industry. A series of prizes was offered for the best phrase or short sentence that would adequately summarize all the advantages to be obtained from the use of gas in shops and factories.

One of the reasons that prompted this request for a slogan was the inadequacy of the word "fuel" as applied to gas. The mental visualization of the world "fuel" to the average individual is something in bulk, involving transportation, storage space, investment, expense of handling, a big percentage of waste, and a residuum of dust, dirt, and ashes.

Gas has none of these disadvantages. It is a fabricated article, automatically delivered at the point of combustion, in any quantity at this time, in any place. It is concentrated heat, without waste, under instant control, ready for immediate use by a turn of the wrist, and leaving no useless residue to be cleaned up and carted away. It was these, and other considerations, which led to the suggestion that the industry needed some phrase that would raise gas from the low level of crude fuels and put it in a class by itself, where it properly belongs.

As a result of the advertisements and publicity given to this matter seven thousand and eighty-five slogans were submitted for consideration. Slogans were sent from 44 different states, some from Canada, one from the Canal Zone, and one from Barcelona, Spain.

The above facts are mentioned to establish two things: First, that the consideration of the proposition was not in any sense local. It received attention and consideration from 44 out of 48 states in the Union; second, the extraordinarily large number of slogans submitted gave a very wide field from which to make a selection.

The slogans were submitted to a committee of men well versed in the art of advertising, and most of whom had previous experience in the matter of selecting successful slogans. The sentence finally chosen was, *You can do it better with gas.*

Several sentences conveying the same idea, but not so happily worded, were also considered, and it took some time to decide the respective merits of "You Will Do It Better With Gas" and those of "You Can Do It Better With Gas."

The latter was finally adopted and steps were taken at once to make the public acquainted with it. It was used on bill-boards, in advertisements, and on fences. It very quickly "caught on."

Column conductors and variety actors found great possibilities in it and still do. No doubt they have done a great deal towards "spreading the gospel," getting a little fun out of it besides.

The publicity for this slogan began in January, 1922, and it was found to be so

successful in arousing an intelligent interest on the part of the public that when the American Gas Association met at Atlantic City in October of that year, the Association and any or all of its member companies were invited to adopt the same slogan.

By that time it had been found wise, in some instances, to supplement the slogan with a prefix "If it's done with heat" which gives a little more definite aim and direction to the slogan itself.

The American Gas Association promptly adopted the slogan, and it has appeared on practically all of its literature ever since. A great many other companies also accepted it, "as is." There has consequently been thousands of dollars spent on giving publicity to this particular sentence, hundreds of times as much money as has been spent on any other one sentence, calculated to "sell" the public on the idea that they can "Do It Better With Gas."

Perhaps there are better slogans for the purpose than the one now most generally used. No claim is being set forth that it is the *best* possible phrase for the purpose, but it is claimed that it is the one which has been advertised most generally, and any company that adopts it acquires an asset in the fact that it has, so to speak, been broken in to do the work required, and that, too, at a very considerable cost.

Other industries have adopted nationally used slogans to advantage. Paint manufacturers, for instance, use the words "Save the surface." This is now recognized the country over as a reminder to paint. It would be less valuable and less well known if certain paint manufacturers had preferred to express the argument in some other words.

Some years ago the National Biscuit Company created a national demand by masquerading a sentence under the guise of a coined word, "Uneeda" Biscuit. In some sections of the country biscuits are known as "crackers," and biscuit dealers in those sections might have preferred something on the order of "U-wantacracker." But what would have been the result on the travelling public? Confused by the conflicting suggestions of the roadside signs, the traveller from coast to coast would be in a divided state of mind as to whether he wanted a biscuit or needed a cracker and would probably have compromised on buying a sandwich, thereby losing a sale for the biscuit industry and lowering their rate of profit.

Nothing is any more convincing to the public as to the merits of any merchandise than a whole-hearted, spontaneous, and universal expression on the part of every person dealing in that merchandise, reduced to one common denominator, and told in precisely the same way and in the same words. It seems, therefore, that the gas company slogan "You Can Do It Better With Gas" would gain greater value if every company would use those words in exactly that way.

Many people have expressed regret that the word "best" had not been selected to take the place of "better." This objection, however, could never have come from a fully-qualified advertising man, or indeed any "word painter" or expert in the use of words.

The word "best" is the most boastful, bombastic, braggadocio word in the vocabulary of an advertising man. It is a typical Falstaff among words, and a discerning public punctured its hide years ago. It belongs to an age when all advertising was superlative and silk-lined sentences sold shoddy goods.

The word "best" is fixed and immovable. "Better" is progressive. We are too far away from perfection in any walk of life to apply properly the word "best" to anything. And to the man who claims you can do it *best* with any other source of heat, we can still reply, "You Can Do It *Better* with Gas." "Best" can go no farther, but "better" never tires.

Gas Must Do the Heating

By ALFRED FISCHER
Director, Michigan Committee on Public Utility Information, Ann Arbor, Mich.

Alfred Fischer

WEBSTER defines a slogan as a rallying or war cry. From the beginning of time, the slogan has been a hook upon which men hung their enthusiasms and prejudices; it bore the appeal that filled camps and provided dying warriors with a greeting to eternity.

We may smile as much as we please at the high-pressure sales manager who prepares for a campaign by first composing a slogan even before he approaches the economics pertinent to his problem. The chances are, however, that in so doing he puts his first and best effort into an attempt to align the emotional public on his side. Statisticians and publicists can help him with the rest. From "St. George and Merry England," along to "Remember the Maine," and "They Shall Not Pass," we have always responded to the call of the slogan. We have elected presidents by the potency of "The Full Dinner Pail," and "Keep Cool with Coolidge." Schoolboys still derive considerable kick out of, "Millions for defense but not one cent for tribute."

Today, in the world of business, the slogan serves as the battle cry of the campaigns for trade. Great organizations of devoted men and women are united into corporate armies, and they wield the powerful weapons of advertising and salesmanship to tell us that "There's a Reason," to "Ask the Man Who Owns One," to "Re-roof for the Last Time," and that the best medium of expression is with flowers. We know who boasts of "Sixty-five Years without Loss to an Investor," and "Eventually—Why Not Now" is almost as much a part of us as our fondness for sweet corn. A whole nation has responded to the appeal contained in "Save the Surface," thereby greatly improving its appearance and reducing the toll of time by slowing down the depreciation caused by wind and weather. Even as this is written public opinion is being marshalled behind a matter of prime international import by a sentence of six little words: "Americans Should Produce Their Own Rubber!"

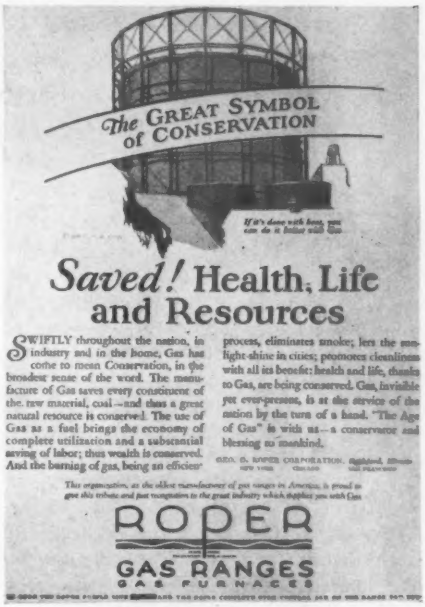
If one examines the structure of these various battle cries of business, it can be seen readily that each one contains the same elements of strength. They are all bold, audacious, outspoken. They look you squarely in the eye with a hypnotic gleam, heads up, chests out, brazenly informing the world that their product is the best of its kind. Without these elements a slogan can never be made a thing of more than passing popularity, as witness, "You gotta quit kicking my dawg aroun'."

The gas industry, like its beautifying sisters who produce paint and flowers, also has a slogan, "If it's done with heat, you can do it better with gas." Much determined and resourceful effort has been put forth to popularize it, yet, except in a few places, the general public has not responded to it greatly. Gas men have been backward about adopting it. It does not find its way into many discussions of gas service although thousands of uses bear witness to the truth of its message. To be a perfect slogan, however, it must combine some poetry with its truth. Now may one not suppose that something may be wrong with the slogan, if it is not generally accepted, since the product is so eminently useful and good? It may be that it does not meet the requirements of a rallying call under which many thousand enthusiastic work-

ers in the first utility can go forth to do battle with competition. It starts out with an "if," and history does not record any great number of men dedicating their careers to "if" or "but." Further along, where the punch is supposed to come, we learn that we can do it "better" with gas. Does that mean that there is possibly a "best?" If so, someone will find it and the public will rally to that, whatever it may be.

Let us see if this comparative slogan does the gas industry justice! Gas is the perfect fuel. There can be no debate about that. It is instantaneous, sensitive, adjustable, and in the field of heating, universal. It bakes a pan of biscuits and a thousand loaves of bread with equal facility. It hardens a bar of steel with the same ease with which it melts a drop of soldering metal. It does these things as well as they have ever been done in the knowledge of mankind, simply, cleanly. The record of more than a century of study and accomplishment is belittled when we say of a boon to mankind so useful and efficient. "If it's done with heat, you can do it somewhat better with gas."

We recall that the first use of gas was as a medium of lighting. It relieved precious eyesight from the flicker of the candle and spared the nostrils the fragrance of the oil lamp. Later, gas gave way as a lighting medium to the still greater convenience of electricity and for a time its destiny was uncertain. But the developments in the field of industrial and domestic heating have revealed to the gas man his true position of sovereignty. Here he can rule supreme. Here he need brook no interfence. He can regard with belligerence the encroachment of oil, as it comes demanding vengeance for being driven out of its place as an illuminant. The gas man must defend his lawful inheritance with determination and aggressiveness and such an attitude can be greatly stimulated by a revision of his slogan. He must be marshalled under


The GREAT SYMBOL of CONSERVATION
Saved! Health, Life and Resources
SWIFTLY throughout the nation, in industry and in the home, Gas has come to mean Conservation, in the broadest sense of the word. The manufacture of Gas saves every constituent of the raw material, coal—and thus a great natural resource is conserved. The use of Gas as a fuel brings the economy of complete utilization and a substantial saving of labor; thus wealth is conserved. And the burning of gas, being an efficient process, eliminates smoke; lets the sunlight shine in cities; promotes cleanliness with all its benefit; health and life, thanks to Gas, are being conserved. Gas, invisible yet ever-present, is at the service of the nation by the turn of a hand. "The Age of Gas" is with us—a conservator and blessing to mankind.
ROPER
GAS RANGES
GAS FURNACES

Possibly a slogan stressing the idea of this advertisement, health and conservation, might prove universally acceptable

a standard that has no "ifs" and "betters."

Suppose we were to hoist a banner reading, "GAS MUST DO THE HEATING" and send the industry forth with such a challenge and the will to defend it to the utmost. It is a slogan, a war cry that will serve engineer, appliance designer, commercial man effectively. What is more, it contains texts for the missionary, the conservationists, the capitalist, the dreamer and the doer. Such qualities must be latent in every good war cry.

"Gas must do the heating" because gas is the net heat contained in our precious coal supply, sent to its work only after every other valuable component has been extracted and put to better use than contaminating the air and filling ash barrels. "Gas must do the heating" because there are other natural and proper uses for oil than burning it promiscuously and ineffi-

(Continued on page 165)

Gas on Increase in "Chicago District"

Economic Merits of Fuel Are Responsible for the Growth in Factory and Home Use

By BERNARD J. MULLANEY
Vice-President, The Peoples Gas Light and Coke Co., Chicago, Ill.

B. J. Mullaney

CHICAGO District" is the designation of a populous industrial and commercial entity, regardless of city, county and State lines, surrounding the southern end of Lake Michigan. It lies along 100 miles of lake shore from the Wisconsin-Illinois State line at the north to the Indiana-Michigan line at the southeast and arches sharply into the hinterland. This area of some 5,000 square miles has a population of more than 4,000,000. Prof. J. Paul Goode, specialist in the economics of geography, calls it "the great economic vortex," destined by nature to be the commercial and industrial center of the continent. By others it is called "the Workshop of America."

Public utility development in this district—meaning electric light and power, telephone, gas and electric transportation service—has reached an average level probably unexcelled anywhere in the world. This development has provided productive investment opportunities for about $1,000,000,000 of capital. Nearly half of this investment has been made within ten years and the curve is still upward. In the twelve months ended June 30, 1926, the new utility financing for the district approached $150,000,000.

Many economic trends—conservation of coal and its constituents, smoke abatement and the special merits of gas fuel for industrial and residence use—are multiplying the use of gas in the district. The percentage of increase in gas consumption since 1910 has been about twice the population rate.

The Chicago company's plants and mains are already the heart and arteries of an inter-connected generating and distributing system that serves a large part of the greater Chicago district. There are eight interconnections with neighboring gas supply systems. Existing facilities are organized for expansion to fit future requirements throughout the area bordering Chicago.

The main artery, across the western flank of Chicago, is 4 feet in diameter and 22 miles long—the longest gas main of its diameter in the country—with a carrying capacity, at ordinary pressures, of 100,000,000 cu.ft. of gas every 24 hours. This can be easily doubled, when necessary, by increasing the pressure. Interconnection, as in electrical systems, enables one company in case of emergency to draw upon the reserves and production facilities of another.

This "pooling" is prompted by the increasing use of gas in industry. The Chicago company, has, for example, one industrial customer that takes more than 1,000,000 cu.ft. of gas every day—more than 30,000,000 cu.ft. a month. Less than two years ago, that customer was using only 1,000,000 cu.ft. a month. Although this increase is greater than the average, it indicates the trend.

LOCAL politics of Brooklyn, N. Y., is apparently to be savored with the home influence. Recently Miss Ruth Soule, of the Brooklyn Union Gas Company, gave a lecture on the baking of desserts and cakes before the 22nd Assembly District Republican Club. The climax of a perfect evening was reached when she distributed samples of the cake and cream puffs she had prepared.

Research in Vital Technical Problems

The Economic and Engineering Survey Committee Will Solve the Problems That Influence the Future of the Industry

By WALTER C. BECKJORD

Chairman, Technical Section, A. G. A.: Vice-President and Engineer, American Light & Traction Co., New York

W. C. Beckjord

THE problems before the gas industry today are probably more far-reaching and comprehensive in their scope than ever before in its history. Due to the gradual development of house heating the gas industry is now faced with peak loads which it has never had to cope with before. These may involve problems so large as to require radical changes in production and distribution of gas. The peak loads on the gas distribution systems in the past due to the overlapping of the gas-lighting peak and the cooking and industrial loads, were relatively very large compared to the daily load curve, and possibly may have been greater proportionately than now or in future, but in total quantity of gas send out during peak load as compared to the gas sendouts of today and what the gas industry has to face in the future the quantities involved were small—and the communities served were much smaller than today. The margin of reserve capacity was undoubtedly larger than it is today. It also brings up the problem of utilizing the capacity, during the off-peak season, which is necessary to take care of these peak loads.

There is also the question of very active competition of electricity, oil and coal in heat treatment processes. To give careful consideration to the problems of the gas industry and to answer these very important questions the Technical Section of the American Gas Association has organized what is known as the Economic and Engineering Survey Committee of the Gas Industry. This committee has organized various sub-committees to which the various detailed problems have been assigned and it is hoped that they will be in a position to present at least a progress report at the annual convention. If the outstanding problems can be put up to the industry in a way that will concentrate the attention of the technical men and executives on the solution of these problems, much will have been accomplished.

Everyone is fairly familiar with developments in the electric industry along the lines of the construction of super-power generating stations and high-tension net works of transmission line all over the country. Much publicity has been given in the press lately about sending power from the Middle West, etc.

All of these developments have been visualized because the transmission lines and large electric stations can be plainly seen by everyone. Intensive publicity campaigns have also emphasized these developments. In the gas industry, the transmission and distribution systems are buried underneath the ground, and the gas works construction has usually not been of a character to attract public attention to the extent the electric stations have.

It would seem the gas industry may well profit by this and consider seriously the high pressure distribution of gas from large gas works by which means a large supply of gas can be made available to small towns surrounding the large centers of population and also to intervening rural districts. This has been done for many years in natural gas fields in Penn-

Presented at the Wisconsin Utilities Association meeting, Racine, Wisc., Feb. 24.

sylvania, Ohio, and Indiana and also in the southwest portion of the United States and in the Southern Pacific Coast Region. Natural gas has been transmitted upwards of 300 miles and projects are now under way to transmit it from 400 to 500 miles. This involves large problems in distribution and re-pumping, but these problems have been met in a very satisfactory manner and there seems no reason why manufactured gas cannot be handled in a similar way if the economics of the situation permit.

There is one fundamental difference in the problem of the super power electric generating station and the super gas works, and that is, from our present knowledge the production of gas from coal involves the production of large quantities of by-products which must be disposed of in competition with commercial markets which markets are sometimes rather difficult to compete in, both as to quantity and price.

Considerable study has been given to complete carbonization methods, but so far there seems to be no method which can be adapted to gas works practice any better than a combination of coal gas and water gas and utilization of blue gas when lower B.t.u. standards permit in which over-production of coke may be taken care of by making water gas should it become necessary. Coal gas production takes care of the base load and water gas the seasonal variations.

The International Coal Conference at Pittsburgh brought out some interesting discussions of the various processes which have to deal with the production of the lighter oils from coal, and ultimate complete gasification methods, but it would appear those problems are still very much in the development stage.

The industry has considered for some years the possibility of an impending shortage of oil. This problem still seems to be one in which experts disagree, but it must be quite evident to any thinking person that the problem is one of serious consideration. Quantities of coal available can be computed because they are capable of measurement, but the quantities of oil available for future supply are not so easily measurable. New fields are being discovered but it is difficult to prognosticate the future. There has been considerable discussion on the possibility of using oil shale of which there are great quantities available in the West, but there seems to be considerable difference of opinion as to the economic possibilities of its utilization at present prices. The time will undoubtedly come and it may be nearer than we expect, when it will be absolutely necesary to use these deposits of shale. There are also tremendous deposits of lignite in the Dakotas and Texas and the western portion of the country. It may be that the present discoveries by Bergius and Fischer can be utilized in the future to procure oil from lignite deposits. These, however, have yet to be applied as a commercial process.

The problems of the gas industry must be met right along, with the processes that are now available, but of course it is well to take cognizance of the future and attempt to develop our problems along lines that will permit economic competition with other fuels.

Gas is sold on strictly competitive basis to the industries and in order to compete with other fuels we must be able to produce and distribute gas at a price that will be comparable with other fuels when efficiency of utilization is considered. The domestic consumer cannot, of course, produce gas fuel at a price that would compare with that which the utility can sell it to him and the total cost to him is a relatively small part of his total living expense, but the manufacturing industries must produce and sell in the competitive markets and the cost of fuel is a very important item in their costs, and they must be able to secure heat for process work at a price that will permit them to compete with other industries all over the country.

One of the most important problems that this committee is considering is that of relative value of mixture of gases. To

this end a research committee has been organized and funds have been authorized to proceed with this research work at the American Gas Association Laboratory at Cleveland. This work involves a study of gases of different B.t.u. value, probably starting from a range of 520 B.t.u. per cu.ft. down to 400 B.t.u. and possibly less. It also involves a study of the combination of the various mixtures of coal gas, carbureted water gas, blue gas, producer gas and natural gas, which may be necessary in various local situations, in order to take care of varying peak loads, particularly the house heating peak which is now facing the industry. It becomes necessary to have available during peak load period large quantities of gas which can be mixed with the existing base load supply of gas in such a way as not to upset the specific gravity situation too much, for the continued readjustment of domestic appliances would cause greatly increased expense and much difficulty would result.

It is to this program that this research committee is now addressing itself and it is hoped that within two or three years very complete data will be available showing just what can be done by different mixtures of gas involving various B.t.u. values, specific gravity changes, pressure variation, etc.

You are all more or less familiar with what has been done in England and Canada in the way of supplying lower B.t.u. gas. In many parts of Canada now the B.t.u. standard is about 450 and apparently very satisfactory results have been obtained. It would seem that a very thorough effort should be made to determine what is economically right, both for the consumer and for the industry, and our effort should lead toward the solution.

In many of our larger cities a situation has developed where large industrial companies are producing quantities of by-product gas which they are selling to the local utilities for distribution. This source

The ultimate consumer must get the best possible service at the least possible cost.

of supply is in many cases uniform, but at times is subject to seasonal variations. There is also available in some localities large quantities of natural gas which is more or less fluctuating in supply.

These problems bring out very forcibly the necessity for considering uniform specific gravity of gas mixtures and this is a factor that must have very serious study by the gas industry. The work of the research committee will develop toward the solution of these problems. A proper solution will enable the gas industry to enter into new fields in the application of its product to industry.

There are many problems of utilization now which require the most minute consideration. Gas makes an ideal fuel in many processes where uniform quality is absolutely mandatory, and that is a problem that the industry must solve. Uniformity of supply is always essential.

In the application of heat to industrial processes, the relative cost of production must be considered. There are three elements in the cost of production: 1. The cost of money or investment cost. 2. Net cost of material including disposition of by-products. 3. Cost of labor. All of these factors must be considered in their relative values, when considering the economics of any situation. The gas industry is in a very advantageous position when analyzed from the investment cost and efficiency basis.

The efficiency of gas plants in which

energy in gaseous form is produced from coal have an efficiency in many cases well above 75 per cent. Whereas due to the basic limitations of utilization of steam through turbines exhausting into condensers the thermal efficiency of even the most modern generating stations is in the neighborhood of 20 per cent. Likewise the unit cost per unit of energy developed in electrical stations is considerably higher than the cost of equivalent energy in gas generating stations.

The problem immediately before the gas industry lies in intensive development of the industrial use of gas based on present day cost of gas in the holder. If this is accomplished gas can hold its own in competitive markets in the future because the same economic conditions which govern the increase or decrease in cost of gas apply to a large extent to other fuels as well.

The ease of utilization must be considered, however, which means that in many applications of electrical energy in industry and general lighting, the convenience of electricity is so great as to offset all other considerations of cost and gas cannot well compete in some of those particular fields. There are fields where the relatively low cost of heat in gaseous form certainly gives it the advantage and it is up to the gas industry to find out just where those applications are and see that they are developed to the utmost.

Developments in compression and long distance transmission of manufactured gas have shown that its fields of application can be developed very materially and the gas industry can well emulate the wide range of activities of the electrical industry. It is hoped that the work of the Economic Survey Committee will materially stimulate these developments.

The major divisions of the work to be done are outlined as folows:

INVESTMENT COST

Under this heading will come a careful study of existing investment costs and an attempted prognostication of what these may develop into in taking care of future business.

PRODUCTION

This will involve a careful study of the existing production methods and their application to a wider field in the future. The engineers should analyze carefully their problem as they see it now and arrange their additional capacity which must be added from time to time, in a way that will best fit into the larger problems of the future. Great care must be given to the problems of specific gravity and lower B.t.u. Future capacity should be added in a way that will best fit in with the tremendous peak loads that the house heating load will bring on, and in order that the business may be taken on at a price on which the gas industry can make a profit the new units of capacity must be low in investment cost, probably of a type in which efficiency may be sacrificed in order to keep down fixed charges. In other words the capacity per unit of investment must be as large as possible—balancing fixed charges against efficiency.

A lower B.t.u. standard would permit the utilization of lower cost fuel and this is an ultimate necessity which sooner or later the industry must take advantage of. The continuous disposition of residuals in competitive markets must be carefully considered because the very nature of the public utility business and the limitation of its rate structure are such that its income should not vary from year to year as may be permitted in commercial enterprises. Its margin of profit is small and its capital turnover period is long.

The present investment in gas manufacturing equipment is very large and naturally must be considered in planning for the future. The particular production problem now facing the industry is utilization of present equipment to the best possible advantage in conjunction with new construction.

DISTRIBUTION

After producing the gas in plants that are built and operated economically it

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The New Era of Gas

Ethel Peyser Comments on New Development in the Industry in National Magazine

CALLING particular attention to the Testing Laboratory of the American Gas Association, Miss Ethel Peyser comments on the present status of the manufactured gas industry in the January issue of *House and Garden*.

It is easy to see that gas has been marching on and that it is rapidly conquering new fields, writes Miss Peyser. Some of the things it has done in a very few years since illuminating by gas was its only function in the home are seen in the following list of appliances: ranges, house heating furnaces, irons, incinerators, laundry dryers, garage heaters, washing machines, space heaters, radiators, ironers, and refrigerators.

"Of all the things that are familiar to us, probably the gas range comes first," she writes. "What used to be an ugly looking affair is today a graceful object of convenience, making the kitchen a lovely place and rendering cooking simpler, surer and swifter. The gas range comes in every style that ranges are heir to: open tops, closed tops, white, black, grained like wood, and even with painted panels. Thus the range will fit in anywhere from studio to professional kitchen. It can be had with coal or oil divisions and with insulation as well; it can cook on retained heat or not, just as you will. It is made for natural gas, manufactured gas, bottled gas, and vapor gas.

"The oven regulators have brought the gas range to a standard of efficiency undreamed of a decade or so ago. Furthermore, top burner temperature regulators are being developed.

"Manufacturers of ranges, because of the tremendous vogue of their products, are always trying either to improve or revolutionize them in order to make them not only simpler to use, but easier to care for.

"No effort is being spared by the makers to make perfect ranges, and none by the gas companies themselves in making thorough tests of ranges and all gas products before they go on sale. Tests, of course, must eventuate in a happy economy in the use of gas plus other fundamental qualifications. The appliance representing an extravagant use of gas would be a faithless product, and so the makers are interested in saving your gas bills so that you will like gas and use a lot of it—but legitimately. A very important laboratory has been established by the gas industry and an appliance which passes this 'third degree' is a safe and sane buy. The products passed by the laboratory are marked by a blue starred label. Watch for it when purchasing."

"Gas has invaded some very important fields," she continues. "For example, incineration: the gas-fired incinerators on the market today are valuable for the old house and the new. They are economical and simple to use. Cutting down the fire hazard, checking the advent of vermin and insects and conserving health are some of the main things the incinerator does by ridding the house of all sorts of trouble-making refuse, at once and definitely.

"To the end that the consumer should use more gas, but economically, the industry makes exhaustive researches. For example, they have found that even in the districts where gas is costly for house heating, it is within any one's purse to use gas heating in combination with wall, ceiling and roof insulation, weatherstrips

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Los Angeles Now Has Natural Gas

STRAIGHT natural gas is now being delivered to the customers of the Southern California Gas Company in Los Angeles and Beverly Hills. This change was made on January twenty-seventh.

An application for a re-hearing has been made by the Southern California Gas Company as to such parts of the decision as have to do with the wholesale rates of gas from the Midway Gas Company, alone or in conjunction with the Southern California Gas Company, to the Los Angeles Gas and Electric Corporation, and they state that the wholesale rates are confiscatory of their property in so far as they apply to the wholesale business.

Improving the Village

UNDER the above title, the *Northern Ensign*, published in the northern part of Scotland, has the following article:

> Those industries which are engaged in the construction and equipment of small dwellinghouses (writes a correspondent) are likely to be appreciably benefited by Neville Chamberlain's Rural Housing Bill.
>
> The measure, which has passed its second reading and is expected to become law before the end of the year, *aims at bringing old rural houses of the more substantial type up to modern standards of comfort and sanitation.* For that purpose, it proposes to empower the Ministry of Health to make grants and loans, and to sanction expenditure by local authorities of sums up to £50 in cases where the appreciated value of the house is estimated not to exceed £400.
>
> Such improvements include not only minor structural alterations, repairs, and the provision of sanitary requisites, but also *the installation of modern methods of lighting, heating and cooking.* Many gas undertakings supplying country districts are likely to take part in the general scheme embodied in the Bill.
>
> "When this Bill becomes law," said an official of a London gas company, *"there will be no reason why the latest automatic gas-cookers and self-ventilating gas fires should not be supplied to cottages which at the present* time have only their substantial construction and their antiquity to recommend them.
>
> "A seventeenth century cottage kitchen can be made as convenient as that of the post-war house. The steady expansion of London has brought many old villages within suburban areas. Yet the oil lamp and the antiquated coal grate have survived because owners of cottage property could not afford to make structural alterations."

New Financing By Utilities Breaks All Records

FOR the sixth consecutive year, the public utility industry of the United States has led all other industries in the amount of new money obtained from the sale of securities to employees, customers and the general public.

Total amount of new public utility financing in 1926 was $1,604,000,000 compared with $1,495,000,000 in 1925, or an increase of $109,000,000, according to the American Gas Association.

The 1926 figure is not only a record breaker but represents more than twice as much financing as took place in 1922, a year when the utility industry was proud to report that it had sold $726,000,000 of securities to the investing public.

During the period 1922 to 1926 inclusive, the public service companies obtained a grand total of $6,038,000,000 of new money for their extension and betterment programs, a record which the Association believes is without a parallel in the history of corporate financing in America.

Lectures Given Before Four Southern Colleges

UNDER the auspices of the Committee on Cooperation with Educational Institutions, of which W. Griffin Gribbel is Chairman, A. Gordon King, service engineer, American Gas Association, delivered lectures to senior engineering and chemical students at the following educational institutions: Mississippi A. & M. College, Louisiana State University, Tulane University, and the University of Mississippi.

In his talks on the manufactured gas industry, Mr. King utilized diagrams, drawings and samples of by-products. At the conclusion of each talk he delivered to the students a specially prepared description of the details of production, distribution and utilization of manufactured gas, pointing out where in the gas industry are found practical and daily application of the fundamental chemical and physical principles studied in the classroom and practised in the laboratory.

A somewhat similar series of lectures was delivered at the first three institutions named about two years ago.

Dutch room and billiard room in the home of A. E. Fitkin, at Allenhurst, N. J., after installation of gas boiler

A Taste of Our Own Sugar-Coated Pills

A House-Heating Installation in a Utility Executive's Home That Opened Up the Field in New Jersey

By HALSEY POLHEMUS
General Engineering and Management Corp., New York, N. Y.

A. E. Fitkin

THE gas-fired boiler for house heating, and for hotel and office building heating, has been introduced with marked success by the Jersey Central Power and Light Company, a subsidiary of the National Public Service Corporation. Given an attractive rate, residents in the resort towns along the Atlantic seaboard have responded with more than 200 installations to the lure of this modern house heating method, which promises even, constant heat free from the labor of coal handling and ash removal. Incidentally, this business is helping build up a nice winter load for the gas department. Winter, as might be expected in a seasonal territory, has been a deep and gloomy "valley" for the Jersey Central gas division.

The campaign for gas-fired boilers was launched about a year ago. Architects, builders, plumbing and heating contractors in the section, and some hand-picked citizens who had been educated and "sold" on the gas-fired boiler idea, were assembled in a meeting under the auspices of the new business department. There was a comfortable dinner and then speakers who had been rehearsed for the occasion proclaimed the merits of house heating by gas and announced the special rates which had been published for this purpose.

Heating men and plumbers were offered the cooperation of the company's sales force and radiation experts, and were made thoroughly acquainted with the progress in house heating which the gas-fired boiler has achieved. These men lined up enthusiastically and then the new business salesmen rolled up their sleeves and went to work.

The first prospect they tackled was A. E. Fitkin, President of the National Public Service Corporation, who has a summer home in Allenhurst, N. J., which he maintains throughout the year and to which he goes for week-end recreation and mid-week rest. Mr. Fitkin was quickly sold. But the salesman had implanted an idea which began to take form as the "chief" visualized a clean cellar "without an unsightly coal bin and the dust and dirt of ashes."

"I'll do it," he said to the startled salesman.

Mr. Fitkin's home and the gas boiler that proved a merchandising stimulus to house heating sales.

"You'll do what?" queried the latter with the abruptness of the startled.

"Why, I'll just show you what can be done with a dirty cellar," he said. Then he summoned his architect.

The architect came and took measurements and marked the floors and walls. Two days later the old furnace had been ripped out and huskies were sweating and wrestling with the oddments that collect in a spacious cellar used over a period of years.

Carpenters and masons arrived with the new gas boiler. In three weeks Mr. Fitkin's cellar had been transformed into:

A Dutch room, with prettily panelled ceilings and just the right sort of lamps supplied by the new business department;

A billiard room, with ample high chairs and all the elbow room the most fastidious knight of the cue could require;

A room large enough for the ordinary "daily dozen" plus a rowing machine and a shower bath;

A lavatory, and the boiler room.

Here the new business department did itself proud. It matched the nickle finish of the gas boiler by installing a nickle plated meter—all in the same room.

The job was a beauty. The new business department was immensely pleased. Would Mr. Fitkin permit it to be shown? Mr. Fitkin not only would, but suggested that the new business department round up its prospects in groups so that he could personally conduct the tour.

The "Fitkin job," as the gas-boiler men describe it, was the signal gun. The salesmen went to work and 70 odd installations resulted. More than 100 were added the second year. The mark for 1927-28 is 500.

In April, 1926, construction work was started on a new six-story headquarters building for the Jersey Central Power and Light Company in Asbury Park. The building covers a plot 90 by 86 feet. Gas-fired boilers, of course, were specified for the heating. The results have been thoroughly satisfactory and the installation has become a great sales force

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EDITORIAL

By ALEXANDER FORWARD
Managing Director

Technical Research

EVERYBODY recognizes now that research is the mother of progress, and this is not written with any intention of laboring the point.

The Executive Board of the American Gas Association has authorized a program of research to be undertaken in the Testing Laboratory at Cleveland. Our industry, like all others, is confronted with problems of today and can to some extent apprehend problems of tomorrow. We propose to gather all the knowledge that is available on the questions that we have to meet now and that we must meet in the near future.

Chairman Beckjord of the Technical Section is telling the story on page 139 of this issue. We know that we have the ideal fuel and we intend to make it of the most efficient quality and distribute it in the most efficient manner possible in any given locality in the light of conditions that may there exist. We have a responsibility to furnish the fuel of the world and we propose to find out how best to do it.

The Managing Committee of the Testing Laboratory, under the leadership of Mr. Ralph W. Gallagher, President of the East Ohio Gas Company, and the Committee on Technical Research of which Mr. F. C. Weber of Henry L. Doherty & Company is Chairman, under the general direction of the Committee on Engineering and Economic Survey with Mr. H. E. Bates of the Peoples Gas Light & Coke Company of Chicago as Chairman, have agreed that this work can be conducted for the present at least, in the most economic and efficient way at the Laboratory in Cleveland. A certain amount of overhead costs already incurred in the testing program can be conserved. Due to the method of testing operations, by which appliances are stored elsewhere and only those actually under test are on the floor, we have a certain amount of room available for research purposes. We have the further opportunity there of demonstrating actual operation of gas mixtures on appliances. We have available in Cleveland the range of gases which was largely a determining factor originally in locating the Laboratory at that point. Certain facilities have been offered us through the generosity of the East Ohio Gas Company which will tend to reduce the cost. The appliance testing program is now so well advanced so as to preclude the possibility of interference with that undertaking through the conduct of the research work.

It should be made plain, however, that there is no intention to place any portion of the cost of research on the manufacturers who are, through the payment of test fees, contributing to the cost of testing appliances at the Laboratory. The expenses of this research will be duly assigned in equitable proportion so that the gas companies and the manufacturers of appliances will bear ratably the expense of the work relating directly to them.

What the large accumulations of manufacturing capital in the electrical industry have done for the development of that field must be done by the gas operating companies for themselves in our field, and we propose to do it with our own money, our own thought, our own time, our own knowledge and our own energies.

Good Housekeeping Praises Laboratory

STRESSING the fact that the public should insist that the gas appliances it purchases are of good quality, George W. Alder, consulting engineer of Good Housekeeping Institute, recently called attention to the work of the American Gas Association Testing Laboratory.

"The necessity for perfect combustion," writes Mr. Alder, "suggests that care be exercised in the selection of gas-burning equipment as well as in its use. When purchasing a gas range, water heater, or room heater, buy only products made by manufacturers of known reputation. If the device is not designed and built correctly, it may be impossible to secure good combustion while using it.

"Recently the American Gas Association started a testing service available to manufacturers of gas-burning appliances. If possible, assure yourself that what you are buying conforms to the high standards of this Association. The present standards of Good Housekeeping Institute for burner operation and construction follow the American Gas Association specifications."

One Hundred Per Cent Laboratory Support

THE Brooklyn Borough Gas Company, Coney Island, N. Y., has recently issued to its customers an attractive four-page leaflet; on page two calling the customer's attention to the Testing Laboratory of the American Gas Association, as follows:

YOUR GUARANTEE OF PROVED SAFETY AND QUALITY

ANY GAS appliance bearing the *Blue Star* Seal has been rigidly tested in the scientific laboratories of the American Gas Association. The Seal signifies officially that the appliance so marked conforms to the highest standards of efficiency, durability and safety.

"Your gas company is backing this movement to give you ultimate protection, and will be among the first to display appliances carrying the *Blue Star Seal.*"

Error

IN the January issue of The Monthly the bibliography attached to the article entitled, "Comparative Financial Statistics of 234 Manufactured Gas Companies," contained an error. The American Bankers Association is not preparing a booklet on the gas industry.

The new Stevens Hotel in Chicago, where the ninth annual convention of the American Gas Association will be held.

Refrigeration—A Challenge to Our Industry

The Support of the Entire Gas Industry is Needed in Order to Merchandise this New Use Effectively

By CYRUS BARNES
Chairman, Subcommittee on Sales Promotion, Publicity, and Advertising of the Refrigeration Committee

REFRIGERATION by gas is now marketable. This new use of gas offers tremendous opportunities for increased sales, making it imperative for the gas industry, as a unit, to support it wholeheartedly. Two companies, the Servel and the National, are now in production, and sufficient machines can be had for gas companies to merchandise the idea successfully. The idea must be sold within the next few months, or the momentum attained by the electric machine will become even stronger. The gas industry must support the refrigerator, if it wants to realize the benefits of this new application.

Exhibit of ice-making by gas in England

In return for this support, the industry will gain a revenue-producing load and will place in their customers' homes a service that will do more to draw attention to gas than any other one appliance. The gas refrigerator will interest the customer, exactly as it has interested the gas industry. The principle is paradoxical and fascinating.

To promote refrigeration by gas, the most effective work which the gas industry as a whole can do now is to endorse the gas refrigeration idea and to indicate to the manufacturers already in the field, and those who are somewhat interested in producing refrigeration by gas, that it is willing to put its money and effort behind this appliance.

All committees and sections of the association which are working on the development of the gas business should give refrigeration by gas an important place in their discussions and programs.

The local gas sales associations, together with the manufacturers, should organize schools to be held at different centers giving information on refrigeration.

The most important step, as far as the gas industry is concerned, is to line up the entire gas organization to a point where it will put its engineering talent and money, and such assistance as is necessary, into a united effort to develop this refrigeration by gas as soon as possible.

The first step for the gas company is to employ a service engineer. One of the most important phases in the sale of refrigeration is servicing.

The second step is the organization of a sales force. It is necessary to have salesmen who are competent to sell refrigeration. This type of salesman must be of higher grade than the average gas appliance salesman. In order to obtain this type of salesman, he must receive sufficient remuneration to compete with the electric industry.

Third in importance is a survey of the territory for prospective business. Old homes and new homes which are occupied

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Eastern States Gas Conference—April 7-8

Preliminary Program Contains Many Papers That Will Be Timely and Interesting to the Gas Man

ONE of the largest gatherings of gas men of the year will hold forth at the Bellevue Stratford Hotel, Philadelphia, April 7 and 8, under the Eastern States Gas Conference, the only Geographical Division of the American Gas Association. The officers, headed by S. P. Curtis as President, together with the Program Committee of which H. H. Ganser is chairman, have been busy for months developing a program which will justify the attendance and close attention of every gas man not only in the territory covered by the Conference, but outside this district as well. All are invited and will be welcome.

S. P. Curtis

As the MONTHLY goes to press, the program cannot be announced in detail but enough can be said of it to emphasize its broad scope and attractiveness.

The convention will open with an address by S. P. Curtis, President of the Conference. A message from the A. G. A. will be delivered by Major Alexander Forward, Managing Director of the American Gas Association, and an inspirational address by Frank Jewel Raymond will also be presented at this opening session. Mrs. Anna B. Scott, cooking expert and food economist, *Philadelphia Inquirer*, will address the convention on the value of home science.

Other features of the program will be as follows: "Strengthening Public Relationship Through Telephone or Order Clerk," will be especially timely. The industrial heating problem will be presented through the medium of a paper on "Gas in Competition with other Fuels." Edward Steidle, Secretary, Mining and Metallurgical Advisory Boards, Carnegie Institute of Technology, will present a paper on "Prone Pressure Method of Resuscitation." This is to be followed by presentation of McCarter medals.

Philip H. Gadsden, Vice-President of The United Gas Improvement Company, Philadephia, and President of the Philadelphia Chamber of Commerce, will address the convention on "The Gas Industry's Relation to Civic Enterprises." H. D. Valentine will present a paper on "The Problem of Domestic Load Building Through the Introduction of New Uses for Gas," which will include house heating, refrigeration and incineration. A paper and considerable discussion on the subject of deposits in mains, services and meters is anticipated. An innovation to gas conventions will be an address on "Power Washing Machines, Laundry Dryers and Ironing Machines as Load Builders," by S. D. Heed, President, Electric Household Utilities Corporation, Chicago, Ill.

ALL manufacturer members of the American Gas Association are requested to furnish suitable material for publication in the A. G. A. Monthly. Articles that have definite value for the individual members of the Association are especially desirable. The right to edit all manuscripts is reserved, and nothing of an advertising nature will be included.

England Experiments with American Coal

A Few Comments on the Success of American Coal As Used in England During the Coal Strike

By GEOFFREY WEYMAN

THE extraordinary and unanticipated success of the gas industry in maintaining an uninterrupted supply of gas during the seven months of the strike may be laid down to three factors: First, the firm and persistent determination of all concerned to maintain the supply; second, by the large stocks of coal carried by the various gas undertakings, coupled with the full use of all existing water gas plant and extensive steamings of vertical retorts; and, third, the importation of foreign coals. The first factor is most important. Without the extra work and thought given cheerfully, and as a matter of course, by all connected with the industry, it is certain that the interruption of an essential service would have seriously aggravated the national trouble. Those directly concerned in retort house work deserve the greatest credit for their efforts in facing the continual worry and trouble of dealing with the miscellaneous collection of coals which was carbonized.

In order to illustrate the remarks which will be made in respect to the coals used, results of tests (on a 1-1000th ton scale coal testing plant) will be quoted, by the courtesy of F. P. Tarratt, engineer to the Newcastle-upon-Tyne and Gateshead Gas Company.

Abstract from the *Gas Journal*, London, England.

The relief experienced when the first consignments of American coal proved up to expectations was immense. Most of the coals imported were unscreened Kanawha gas coal, but Westmoreland, Youghiogheny, Fairmont, Roda, and Elkhorn were also used. In type these coals more closely resembled the South Yorkshire coals than the more strongly coking Durham coals. They are characterized by having a high rate of carbonization. This feature, which is the most important property of gas coals, was in striking contrast to the European coals dealt with, and even to most Durham coals. Thus a works accustomed to Durham coals carbonized the American coals with remarkable ease. Those works, however, which normally dealt with the more easily carbonized coals, such as those from Yorkshire, would find the American coals troublesome.

A coal which allows of being quickly carbonized, and at the same time contains sufficient bituminous matter to give a coherent coke, can be relied upon for a good yield of high quality gas. The American coals gave a fair coke, which, although softer than that from good Durham coals, was quite strong enough for ordinary purposes. The gas yields were high, and the quality good; while the tar yields were also very good. No particular

TABLE OF AMERICAN COALS

	Gas Per Ton						Coke			
Coal	Moisture P. Ct.	Volatile Matter P. Ct.	Ash P. Ct.	C. Ft.	Cal. Val. B. Th. U. Per C. Ft.	Therms.	Cwt. per Ton Ton	Hardness P. Ct. Large	Rate of Carbonizing Standard —50	Tar, Gallons per Ton
A	1.78	34.91	9.08	13,000	589	76.6	13.4	75	52	11.4
B	1.90	35.50	8.30	13,000	563	63.2	13.8	80	54	11.0
C	2.15	35.35	10.85	13,000	545	70.8	14.0	78	50	11.2
D	1.86	35.57	4.64	13,000	578	75.1	14.3	79	57	11.5
E	1.75	35.36	4.65	13,000	558	72.5	14.1	82	58	11.2
F	2.18	39.66	7.90	13,000	533	69.3	13.7	81	49	10.5
G	2.42	37.58	5.60	13,000	564	73.3	13.7	81	49	9.9
H	5.98	17.69	7.30	13,000	500	65.0	16.0	87	40	6.0

A, B—Kanawha C—Youghiogheny and Westmoreland D, E—Roda F—Fairmont, G—Elkhorn H—Coking coal

trouble was experienced with clinker, even in the water gas plants, the fires being on the hot side as the coke was readily combustible. This might lead to formation of clinker from the ash of some previous coal.

An important feature was the uniformity; only one delivery appearing to contain a mixed lot of coals, some of which were the coking type (Kanawha Marian). The best all-around test (A), and the average (B) of some 60 samples of Kanawha are in the table. It must be remembered that the test conditions have not been altered from those in vogue for dealing with Durham coals, and in some respects the American coals might have given better results with adjustment of conditions to suit this type of coal.

Youghiogheny and Westmorland—These coals did not present any great difference from the Kanawha. The thermal yields were a little lower, and the coke yield larger and harder. The coals carbonized quickly in the first stages, but there was sometimes difficulty in driving out the last portion of the volatile matter, and charges were apt to be black-cored. The ash was definitely higher.

Roda—This coal proved the most successful all-round variety for gas-making purposes. The thermal yields were equal to any, and the rate of carbonization higher, although the coke was stronger and tar yield very good. The ash was remarkably low, varying from 3'7 to 6'8 per cent, with an average of 4'65 per cent.

Fairmont—The results were not so good with this coal. This was the only variety with a sulphur content (about 3 per cent) sufficiently high to cause comment. It was noticed that the sulphur in the purified gas rose abnormally high while this coal was being carbonized.

Coking Coal—Some coking coals were received in this country, and may have found their way to gas-works. Test H shows what might have been expected from this class of coal, which, of course, is not suitable for ordinary gas-works use.

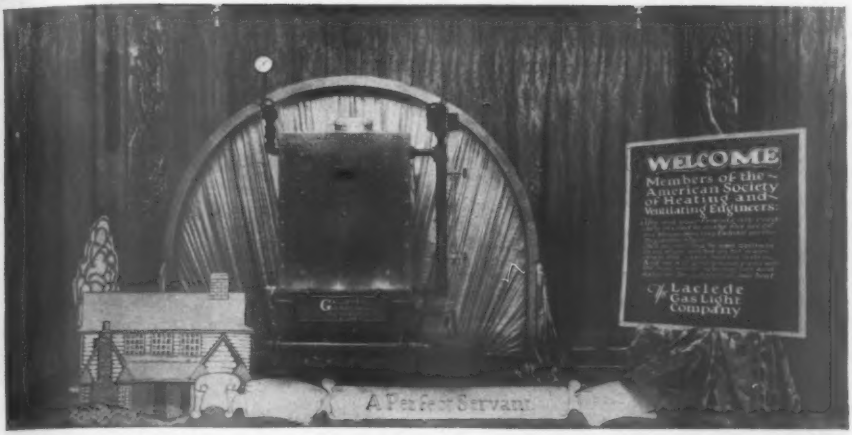
Experience with different coals during the strike has laid emphasis on several issues, and it would be wise to give these serious consideration. At the last meeting of the Institution of Gas Engineers a good deal was said as to the effects of particle size on the carbonizing properties of coal. The strike has shown very clearly that small coal is not suitable for the normal gas-works plant. It is realized that the coals used in the future must contain a low ash, but if the coal is reduced in size in order to eliminate the ash, how are we going to deal with it? It would seem that small coal will have to be blended and briquetted, or dealt with in chamber ovens or coke ovens.

Another matter which obtrudes itself is uniformity. A part, at any rate, of the success obtained with American coals must be laid to this feature. Normally there is a very wide variation in the coals dealt with, particularly by those works situated on or near the coal fields, and taking coal by rail. The extremes reached during the strike reduced retort houses to chaos. Is it not possible to secure uniform and standard British gas coals? In any case, it is evident that only properly prepared coals of the best type can compete on the open market with American gas coals.

First U. S. Gas Company Century Old

FEBRUARY 5 was the one hundred and tenth anniversary of the incorporation of the first manufactured gas company to be established in the United States. On February 5, 1817, the Gas Light Company of Baltimore, Md., came into official existence.

It was in 1816 that the Baltimore city council passed an ordinance permitting Rembrandt Peale, of portrait fame, to manufacture gas, lay pipes and contract for street lighting in Baltimore. It was not until the next year, however, that the company was incorporated.


WELCOME
Members of the American Society of Heating and Ventilating Engineers.
Laclede Gas Light Company
A Perfect Servant

This window display tells of cooperation to sell house heating. Similar efforts are to be made with the plumbers to sell refrigeration

A Plan for Merchandising Refrigeration

How the St. Louis Company Is Planning to Sell the Public the Idea of This New Appliance

By J. J. BURNS
Superintendent, Commercial Dept., The Laclede Gas Light Co., St. Louis, Mo.

WE will sell both remote and self-contained refrigerating units but we plan at the outset to feature the self-contained unit on account of the new and unique method which it employs in working out the refrigerating process. In advance of offering this refrigerator for sale to the St. Louis public, we made a survey of the entire situation taking into consideration the fact that mechanical refrigerators (other than gas) had been intensively promoted here and had been quite extensively sold. The publicity which had been given to mechanical refrigeration in recent years has made the public mind receptive but this publicity has also carried with it, at least by inference, the conviction that if you were going to replace ice box refrigeration satisfactorily it must be done electrically. Facing an atmosphere surcharged with impressions that only some type of mechanically operated device could produce satisfactory refrigeration, we came to the conclusion that our sales program must be mapped out with the idea of at once dispelling some deep-seated illusions now in the public mind concerning refrigerating processes and the admittedly unavoidable drawbacks, such as noise, adjustment and occasional replacement of moving parts which are considered by the public at large as a natural accompaniment of all refrigeration processes.

Another phase of the problem to which we gave considerable thought was the fact that the gas refrigerator which we are planning to put across is a low consumption (2-1/2 cu.ft. per hour) continuous operation refrigerator, and that if we were to make any worth-while addition to our domestic gas load we must have volume sales. Every sales factor to which we gave consideration in our preliminary planning for the sale of gas refrigeration seemed to suggest organizing for imme-

Presented at the Mid-West Sales Conference, Chicago, Feb. 16-18.

diate sales effort on a large scale. One very dominant factor in this connection was our conviction that while remembering that we were several years later than some of our competitors in our bid for refrigeration business, we were in a position to take advantage of all the breakdown effort which these competitors had applied against sales resistance, based on cost of high-class home conveniences.

After a study of competing units sold in our market and with a refrigerator that had all the outward evidences of class and value that the best specimens of our competitors could claim and no background of shortcomings to handicap us, it seemed that we should plan to go into the field with our sales battle-line as far flung as possible, and to take our place in the sales van immediately rather than with halting steps.

In our effort to utilize all of the sales helps and agencies that might be available in the sales drive which we plan to make for gas refrigeration, we deemed it advisable to acquaint all employees of our company with refrigeration by gas, extending an invitation to them through their department heads to inspect our test unit. A number of these employees responded to our invitation. The operation of the refrigerator was explained and questions were invited. A wonderful interest was aroused among those who were present at these demonstrations and they carried the story back to those of their fellow employees who had not responded to our call. We have since issued a bulletin to company employees entitled "Earn Extra Money During 1927," offering $5.00 for each prospect report which develops into a gas refrigerator sale at regular retail prices.

As set out above relating to other employees of the gas company, we plan to reward all of our salaried sales people whether engaged in or outside of our store by giving them a bonus on each refrigerator sale which they make.

Being unable to make a market analysis our initial refrigerator purchase order was based on sales pledges obtained from our regular sales force charged with the sale of these refrigerators.

In our plan for effectively enlarging our selling organization, the plumber as a logical adjunct to our sales force most naturally came to mind. Not that from any past experiences with the plumber were we inclined to consider him a "high power" salesman, but most likely due to the fact that by reason of the necessity for a water, drain and gas connection, the refrigerator installation looks like a plumber's job. Another reason was that the promotion of the sale of gas by plumbers was in line with the work initiated by the American Gas Association, to secure the cooperation of the plumbing and heating industries for the benefit of all concerned.

As a preliminary step we called in several representatives of our St. Louis plumbers with whom we had recently been working in an effort for greater dealer cooperation. In conference with these men we explained a plan whereby the plumber could buy gas refrigerators direct from us or, acting as our sales representative, take orders on our sales forms according to our regular payment purchase plan, such order, when turned in, to be accompanied by the usual first payment and be subject to our credit and other requirements.

After inspecting our test unit and its parts and having the principle explained to them by the manufacturer's representative, so the story would be more effective, a colored diagram showing the different cycles of the ingredients used in producing refrigeration was set upon a blackboard easel and the travel of each ingredient shown on the picture and identified on the display unit. We discussed the matter of connections and the amount we were setting up for this work. We explained to them that it was our impression that the sale of gas refrigeration by the plumbers afforded them an opportunity of carrying out The Trade Extension Bureau idea of promoting business which

is now being encouraged by executives representing the national organization of plumbers. These men, leaders in the plumbing organization in St. Louis, interested their organization to the extent of having a personal letter addressed to each member inviting him to come to the gas company office on evenings of specified dates to examine the new gas refrigerator and have its workings explained. The following excerpt from the letter referred to above will give some idea of the appeal the gas refrigerator made to this committee of plumbers:

"This appliance is a business producer for you as it requires a gas connection, waste and water supply. Where you promote the sale full commission will be given in addition to payment for the connections.

You are requested to inspect the Gas Refrigerator in operation in the basement of the Gas Company, 11th and Olive Streets, at 8 P.M., February, — at which time you will be given the opportunity to present any questions that you may desire to ask the attendant in charge.

Hoping you will not neglect this opportunity, thereby showing the officials of the Gas Company that you believe in carrying out the Trade Extension idea of promoting business, we remain,

Yours very truly,
GAS RELATIONS COMMITTEE
Edw. Monteath, Chairman.

In the interim we had prepared a sales manual and a set of connection specifications which we mailed to all plumbers, the delivery of this matter being timed to coincide with the receipt of the notification which the plumber received from his organization, which was a few days in advance of the date set for his group meeting at the gas company office.

In response to this appeal from their own organization the plumbers came in groups on nine or ten evenings and some of them who found it inconvenient to call on the nights assigned called during the day. The favorable manner in which practically all of the plumbers commented on the refrigerator was most encouraging and the effect of the contacts created through the medium of these nightly group meetings of plumbers in the gas company office is bound to have a value independent of the direct benefits which may come through refrigerator sales.

We have not met a single plumber who was not in entire agreement with our sales plan and enthusiastic about the sales possibilities of the gas refrigerator as evidenced by their placing purchase orders for future delivery of display units as soon as our stock arrives.

Besides displaying the refrigerator to

When window displays, as well executed as this one, are used for refrigeration, watch the sales of units grow

the groups as they came in and explaining its principle and operation, we showed the plumbers how we planned to help them.

We had a map of the city set on an easel with numbered thumb tacks to indicate the location of each plumbing shop. A typewritten list corresponding to the tack number as shown on the map was hung along side the map so that the plumber could easily locate his shop on the list and on the map. We explained that this was done to facilitate the distribution of refrigerator connection orders originating from sales made by other units of our sales organization and to help place this class of orders in the hands of the nearest plumber for installation.

All of these refrigerator connections will be made by plumbers according to our specifications at an agreed price per job and acceptance of each job is subject to the approval of our inspector.

A copy of these specifications, under the caption, "Instruction for Connecting the Home Service Gas Refrigerator," was sent to each plumber. We are giving the new gas refrigerator a name which links it up very closely with the gas industry of today and this name plate will be attached to all refrigerators purchased.

For the purpose of more effectively handling any service work which may be necessary in connection with the operation of the Home Service Gas Refrigerator, a special history card file will be kept on these refrigerators as they are installed and inspected. They will be identified by the serial number under which we purchase them from the manufacturer and will show the name of customer and location where installed, name of plumber making the installation, report of inspector approving the installation, his name and dates of all inspections with box temperatures on each call. These cards will be filed alphabetically by location in the office of the house heating division of the commercial department. The service work on these refrigerators will be handled by our house heating service department men.

In planning our gas refrigerator sales promotion we have decided not to employ the phrase "gas-fired" in any printed or spoken word. Our advertising department is preparing copy for gas bill fliers which will run monthly for six months. We are now carrying on the dash boards of our street cars a bulletin in colors with the announcement of the refrigerator. Bulletin board space has also been arranged for and will be used as soon as we are in shape to fill orders. Our initial newspaper copy will be a full page in each of the four St. Louis dailies.

This will be backed up by the regular runs of smaller copy. Porcelain enamel signs with blue letters on white background are being made up for display in front of plumber's place of business or in his show window.

We have also arranged for a quantity of installation announcement boards which are to be displayed on the purchaser's premises during the installation period. Descriptive literature to be used by our sales people is being prepared. A considerable quantity of this printed matter will not carry the usual gas company imprint but will be so made up as to permit the plumber, by using a stamp, to supply his own imprint. The fact that we have arranged to employ the plumber in the capacity of a sales representative permits his use of the literature that we use and justifies the use of his name on our refrigeration literature.

At this time we are using one of our display windows for announcement purposes to create an interest in the new Home Service Gas Refrigerator which is scheduled for a later appearance in this window.

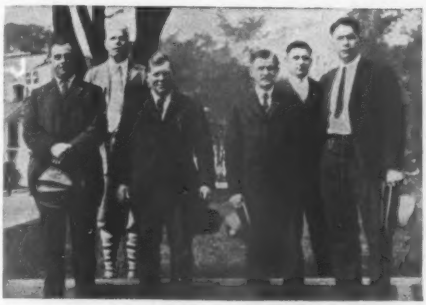
This is an action window that portrays a mountain of melting ice which is being picked, shoveled and carted away by mechanical figures to prepare for the arrival of the gas refrigerator.

When the gas refrigerator is offered for sale to the public, part of the present setting will be used as a background to display our Home Service Refrigerator in active use.

Making A Game of Accident Prevention

Glens Falls District of Adirondack Light and Power Corp. Uses a Prize Competition to Get Interest

THE Glens Falls District of the Adirondack Light and Power Corporation has started a competition that will stimulate interest in safety methods by placing various departments in competition for a prize.



The members of the Glens Falls, N. Y., District Safety Committee

The prize will be a suitably engraved shield which can adorn the office or truck of the winning group as the case may be.

By stimulating a spirit of contest the local Glens Falls Safety Committee hopes to improve materially its inter-district standing. With the cooperation of all concerned they hope to set a mark for the other districts.

DETAILED PLAN OF CONTEST

(1)—This scheme of competition has been designed by the Local Accident Prevention Committee for the purpose of stimulating interest in safety methods, minimizing the number and severity of accidents and prompting inter-department morale by the spirit of contest.

(2)—The rules of the contest are as follows: (For convenience the following departments are designated as contestants.)

1—Gas Department (Plant, Construction)
2—Electric Service
3—Gas Service
4—Sub-station Operation
5—Sub-station Maintenance
6—Electric Construction
7—Electric Construction
8—Electric Construction
9—60 Cycle Department
10—Electric Meter Department

Note: The office stockroom, garage and street light patrol are not included.

(3) Once each month an inspection of all the departments will be made by a committee consisting of one member of the Accident Prevention Committee, who will act as Chairman, and two others, appointed from the departments. Inspection will be made of the following items:

Tools—Condition, Supply.

Department Headquarters — Housekeeping, Neatness (Building and Grounds).

Trucks—General Condition, Arrangement of Tools, etc.

Safety Devices—Condition, Supply.

QUARTERLY TESTS

(4) Once in each three-month period there will be written tests on the Accident Prevention Code and also demonstrations of Prone Pressure.

(5) The Accident record of each department will be computed quarterly. The Accident record will not only include personal injury but also public liability, and property damage. Any form of accident of claim will be considered.

METHOD OF SCORING

(6) For convenience in computing the score for the period a department of 20 men will be used as a basis for accidents, other items of contest by regular rating.

(7) Perfect score for the monthly in-

spections will be ten (10) for each item under that head, with such deductions as may be decided by the Inspection Committee and approved by the Local Accident Prevention Committee. These items are: Tools, Headquarters, Trucks and Safety Devices.

(8) The answers to the written tests will be corrected and rated in per cent. The average of all rates of each separate department will be used as a basis for scoring. Ten (10) will be a perfect score with a deduction of one (1) point for each five (5) points less than 100 in the average percentage rating.

(9) In addition to the above there will be a deduction from the total score, three (3) points for each violation of the Accident Prevention Code or Operating Rules of record during the three months contest period.

(10) The quarterly demonstration of Prone Pressure will be made before a special committee appointed by the Chairman of the Accident Prevention Committee. Each member of the department will be rated in per cent of proficiency and the average per cent of that department will be used as a basis of computing the score. Then (10) points will be a perfect score and one (1) point will be deducted for each five points lost in percentage.

(11) The Accident record for each department will be scored as follows: (The perfect score being fifty (50) points.)

(12) For each no lost time accident two points will be deducted.

(13) For each lost time accident five (5) points will be deducted for each week of lost time or fraction thereof.

(14) For accidents involving public liability or property damage five points will be deducted for each $50.00 of final settlement of the claim. In case final settlement has not been made at end of the contest period an amount equal to 50 per cent of the claim will be used, or such an amount, if any, as may be deemed fair by the Accident Prevention Committee.

(15) Failure to report accident or injury of any kind will disqualify that department for the period.

(16) At the end of each three-month period a suitable award will be made to the department having the highest score. This to be held for the following period and then awarded to the next winner. After three consecutive wins the award will be permanent with that department and another similar contest started.

(17) Should a department hold the award for one period and then lose to another, they will be given a suitable device indicating that they had held the award for that period.

(18) The first award will be a suitable engraved shield to be kept at office or carried on the truck of the department winning.

The 40-inch letters proclaim the purpose of the Manchester Traction, Light and Power Co., Nashua, N. H.

Analysis First Report of Bureau of Standards on Effects of Soils on Pipe Materials*

By W. H. B. GARDINER
New York City, N. Y.

ABOUT five years ago, the Bureau of Standards, in cooperation with a number of makers and users of iron and steel pipe, undertook an extensive study of the effects of soils on pipe materials, this study embracing the effects on the metal itself, on metallic coatings and on bituminous coating materials. In the early part of December the first report on this investigation was given out at the annual meeting of the American Petroleum Institute. This report covered bituminous coating materials only.

Between the years 1922 and 1925 coated test pieces of pipe were buried in 48 localities covering a wide variety of soil conditions. Eight different coating materials were used, but in some cases the application was modified or varied so that 14 methods of pipe protection were actually under investigation.

The tests as conducted were essentially tests of bituminous materials themselves, without particular regard to their availability as pipe coatings in the field as the conditions of application were ideal and were calculated, however, to give the best results of which the various coatings were capable, without regard to whether or not such conditions could be duplicated in field practice. In spite of this fact, however, this report is of great value in at least one particular.

This may be regarded as negative. While the materials or methods which proved satisfactory in protecting the pipe under the ideal conditions prevailing would not necessarily prove adequate under normal field conditions, those which failed under the conditions of test hold out no prospect of satisfactory service under the limitation imposed by field practice.

Table No. 1 gives an analysis of the materials tested with such comments as to their physical characteristics as are noted in the report. Unfortunately, however, not all of the test pieces have been exhumed, the data in some cases being so meager as hardly to justify positive de-

* Full text of the Bureau of Standards Report was published in December 9th issue *Oil & Gas Fuel*, published in Tulsa, Oklahoma.

TABLE I—Part 1. ASPHALT SAMPLES

Table of materials

Sample No.	Mil'g. Point	Penetration at 32°F.	77°F.	115°F	Duct'y at 77°	Thickness	Notes on properties of material
1	216°F.	21	31	47	1.6	.018" .013" .010"	Gilson + Midcontinent—"Cheesy," exuded grease. Poor adhesion to pipe.
2	210	14	19	34	2.0	.03 .024 .02	Gilsonite + Midcontinent + Stearine Pitch—Spalls readily on impact. Very poor adhesion to pipe.
3	181	33	49	89	2.5	.009 .007 .005	Illinois + Midcontinent—"Cheesy," exuded grease. Very thin—easily displaced.
4*	185	13	20	48	3.0	.016 .011 .008	Heavy Mexican. Somewhat waxy. Good adhesion.
5	174	23	33	66	3.0	.012 .008 .007	Heavy Texas—Soft—Somewhat greasy.
6	156	14	28	80	5.0	.013 .010	California Crude.
10*	Same Asphalt as No. 1.					.008	Sample wrapped with fabric—Was prepared by National Tube Co.
12*	215	7-10	25-30	60-70	———	———	Gilsonite + Midcontinent (similar to No. 1) but applied in heavy coat.
14*	"	"	"	"	———	———	Same as No. 12 but wrapped in fabric.

PITCH SAMPLES
TABLE 1—Part II

Sample No.	Mlt'g Point	Free Carbon	Thick-ness	Notes on properties of material
7*	106	17%	.077	Soft coal tar. Must be manipulated within narrow range of temperature—Hard, very adhesive.
8		10.5%	.005	Refined coke oven tar. Hard brittle coating.
9		2%	.004	Refined water gas tar. Thin hard brittle coat.
11*	Same as No. 7 but manipulated to obtain much heavier coat.			
13*	Same as No. 7 but wrapped in fabric.			

ductions. Those samples in Table 1 which are marked with a star are reported on insufficient fullness to justify interpretive study.

There is one point, however, in regard to all coatings in which an analysis of the report confirms preconceived theories. That is the necessity of good adhesion of the coating to the metal. In almost every case poor adhesion or loss of adhesion was accompanied by rusting or pitting of the metal whereas in almost every case where the pipe was in good condition the adhesion was good. It is therefore an error on the side of safety, if at all, to eliminate at the outset those coatings in which the adhesion at the time of application was unsatisfactory since, if they do not adhere initially, there is nothing in subsequent conditions (unless of course the pipe be wrapped or otherwise encased after dipping) to bring about the needed intimate contact with the pipe wall.

There is another point also to which attention might well be drawn and that is the exudation of grease by some of the asphalts, notably Nos. 1, 3, and 5 in the table. This indicates a lack of physical stability in the asphalt, an absence of permanency of the combination of the hydrocarbon elements which make up asphalt as we know it. Asphalt is composed of a number of mutually soluble hydrocarbons, in solid stable solution. When asphalt is refined by the air blown process to a high melting point, there is a stage in the refining where the character of the product changes from a solution of hydrocarbons to a species of emulsion of the heavier hydrocarbons with the lighter hydrocarbons, with the result that the latter (which are asphaltic oil) are not tied to the former but are free to pass off or exude as a grease. As the grease exudes, the asphalt naturally becomes harder until finally its plastic character is entirely lost. It would, therefore, seem an error on the side of safety, if at all, to exclude from consideration asphalt represented by samples Nos. 1 and 2 because their initial adhesion was so poor as to cause comment in the report, and those represented by Nos. 1, 3, and 5 because they exuded their essential oil and were hence unstable. The absence of data as to the behaviour of these samples (and they are all among those not fully reported on) is therefore probably unimportant. This narrows the samples to be considered to the pitch samples 7 and 11, the asphalt samples 4 and 12, and the wrapped samples 10, 13 and 14.

Numbers 7 and 11 are identical ma-

TABLE 2

Sample No.	A	B	C	s	e	a	b	c	Coating Rating	Pipe Rating
7	0	68%	32%	61%	49%	18%	41%	41%	A Good	a. Not corroded
11	0	35%	65%	23%	77%	0	13%	87%	B Slightly deteriorated	b. Rusted
									C Cried out	c. Pitted
									Adhesion rating	
									s. Sticks	
									e. Poor Bond	

TABLE 3

Sample No.	A	B	C	s	e	a	b	c	
4	7%	63.5%	29.5%	45%	55%	23%	37%	40%	Thin coat of good asphalt compared with
12	42%	58%	0	65%	35%	81%	19%	0	Heavy coat poor asphalt

terials, high carbon coal tar pitch, the former applied to a thickness of .077", the latter in a much heavier coat. Strangely enough, the thinner of the two coatings showed less signs of deterioration and gave better protection to the pipe under identical soil conditions than the heavier coating.

This paradox is explained in the report as follows: "The material of the thick pitch coating appears to have undergone little, if any, chemical change, but in a number of cases it has flowed until little or none is left on one side of the pipe."

The statement, incidentally, that the material had undergone little if any chemical change is flatly contradicted by the tabulated results given in the report, of which Table 2 is an analysis. This table shows that the percentage of dried-out specimens more than doubled in the heavy coating. This was undoubtedly true because of the thin coating of material left after the flow had ceased, as thin coats of bituminous materials never have and never will prove satisfactory as coatings.

Of the unwrapped asphalt coatings only Nos. 4 and 12 are reported on in detail and the results are in no sense comparable because the thickness of coating was entirely different. The No. 4 sample had an average thickness of but .011 inches while the No. 12 coating is described as a heavy coat, a heavy coat of asphalt meaning usually upwards of .06 inches. An important inference may properly be drawn by comparing No. 4 with No. 11 as is done in Table 3, remembering that No. 11 is almost identical with No. 1 except for the thickness of coat, and by reason of the fact that it exudes grease and lacks adhesion, is certainly an inferior product to No. 4.

That inference has to do with thickness of coating and is an illustration of the point previously noted, that to be effective bituminous coatings should be applied in substantial thickness.

In connection with an analysis of the asphalt samples, it may be noted that in only one case, No. 4, which was refined from heavy Mexican crude, was there satisfactory initial adhesion to the pipe wall. This is quite characteristic of asphalt made from this crude. At the same time the question arises as to whether asphalts generally have or can have this property.

The conditions of service and of transportation demand in a coating material certain physical properties. First, the pipe must not stick together in transit, the coating must be neither brittle at 32° F. nor so soft at 140° F. that it will seep or run or be rubbed off in handling. In brief, the material must show a minimum susceptibility to temperature changes. This property, which can never be imparted to coal tar pitch, is given to asphalt only by the air-blowing process of refining, and the report states that all the asphalts tested were refined by this process. With rare exceptions air-blown asphalts are notoriously non-adhesive. The producers are forced, therefore, into a compromise where essential properties of protection are sacrificed to obtain desirable physical characteristics.

The low melting point, steam-distilled asphalts are much more adhesive, are much more stable with consequent longer life, than are the higher melting point air blown materials. They do not, however, fill the transportation conditions previously mentioned. Beyond doubt the most efficient form of bituminous coating would be a low melting asphalt, enveloped in a casing that would permit the

TABLE 4

Sample No.	A	B	C	s	e	a	b	c	
4	7%	63.5%	29.5%	45%	55%	23%	37%	40%	Coating .011" thick good asphalt compared with
7	0	68%	32%	61%	39%	18%	41%	41%	Coating .077 thick good coal tar

TABLE 5

Sample No.	A	B	C	s	e	a	b	c	
12	42%	58%	0	64%	36%	81%	19%	0	Unwrapped heavy coat asphalt compared with
14	77%	23%	0	84%	16%	81%	16%	3%	Heavy coat of same asphalt wrapped

transportation of the pipe without the coating being displaced or rubbed off.

The report gives a very interesting and valuable comparison between asphalt and coal tar pitch, which comparison is reasonably conclusive as conditions were exactly parallel as to character of soil and number of test pieces. This comparison is made between asphalt No. 4 which seems very definitely to be the best of the asphalts tested and pitch No. 7, the best of the coal tars. The pitch had the great advantage of thickness of coating, the coating being .077 inches thick as against the asphalt coating of .011. This comparison is shown in Table 4.

The coal tar is somewhat more adhesive, but in spite of its 700 per cent greater thickness is inferior in every other respect. It would seem that a heavy coat of asphalt made from heavy Mexican crude offers distinct promise of pipe protection, particularly if a lower melting asphalt be used so as to obtain greater adhesion.

The wrapped pipe, both in the coal tar and asphalt samples, show very decided advantages over the same coating without wrapping.

Table 5 shows the results of wrapping, the conditions being identical both in the asphalts used, the thickness of coating and in the soils in which the samples were buried.

No comparative table of coal tar coatings showing wrapped and unwrapped coatings is necessary. It is sufficient to state that when coating No. 7 was wrapped in fabric, the results were 97 per cent perfect as far as the condition of the coating itself was concerned and 100 per cent as to the condition of the pipe and the adhesion of the material. A comparison of this with No. 7 can be seen by reference to Table 2. Wrapping pipe in fabric after coating it binds the coating to the pipe and thus to some extent is a corrective for poor adhesion. At the same time it prevents actual contact of the soil with the coating and seems to preserve it. This is substantially indicated by samples Nos. 7 and 12 when wrapped. At the same time too great reliance should not be placed on the fabric wrapping, for it must be remembered that cotton fabric or fabric made from any other vegetable fibre is an organic material and will eventually rot in the ground under soil conditions. This is clearly shown in sample No. 10 prepared by the National Tube Company where on 12 samples out of 19 the fabric rotted in from 2 to 2½ years. Once the fabric rots, it of course ceases to function and sole dependence must be placed on the coating material alone, which will have only such efficiency and such life as is inherent in itself.

A close analysis of this report and the tests with which it deals seems to justify the following conclusions:

1. Whatever bituminous coating is used it should be applied in a heavy coat—from 1/32 of an inch upward.

(Continued on page 165)

TIDE OF MEN AND AFFAIRS

F. H. Sargent

FRED H. SARGENT, vice-president and agent, has been made president of the Lawrence Gas and Electric Co., Lawrence, Mass. Irvin McD. Garfield, retiring president, has been made chairman of the board of directors. Mr. Sargent joined the company in 1904 when he was made assistant to Agent C. J. R. Humphreys, who at that time was an outstanding figure in the gas industry. In 1919, on the death of Mr. Humphreys, he was made agent. He was later made vice-president and agent.

Mr. Sargent's election marks for the first time in the seventy-eight years of the company's existence a president who was a resident of Lawrence and it also marks one of the comparatively few instances in the United States where a great public utility has selected its president from one who has come up from the lowest position in the company ranks.

FRED C. HARMON, for many years cashier of the Lawrence Gas & Electric Company has been promoted to the position of assistant treasurer. Mr. Harmon has been with the company more than thirty years.

C. W. H. LEICHNER, JR., who has been general foreman of the Camden Coke Company, is now in the distribution department of the Public Service Electric and Gas Company, Newark, N. J.

GEO. R. HORNING, general manager, Utah Gas & Coke Company, Salt Lake City, Utah, is now connected with the Southern Gas & Power Corp., Chicago, Ill.

ARTHUR S. BUTTERWORTH, who has been vice-president of the Gas Utilities, Inc., has opened an office at 150 East Broad Street, Columbus, Ohio, where his organization will act as consultants on utility affairs under the name of Arthur S. Butterworth, Inc.

A. J. LUICK is now associated with T. J. Lucas in consulting engineering practice under the name Lucas and Luick, Chicago, Ill. He was formerly connected with the North American Light and Power Company.

HARRY P. DAINS has been elected a director of the Roberts and Mander Stove Company, Philadelphia, Pa. He will continue to care for the company's business in New York, N. Y.

WILLIAM J. WELSH, president of the New York and Richmond Gas Company, Staten Island, N. Y., has been elected first vice-president of the Staten Island Chamber of Commerce.

DONALD M. MACKIE, who has been advertising manager for the Consumers Power Company, Jackson, Mich., is now directing special advertising for the public utility companies under Hodenpyl Hardy management.

LUCIEN R. SHATTUCK, Frank W. Lawrence, and Frederic G. Coburn have been admitted as partners to the firm of Sanderson and Porter, New York, N. Y. They have been, respectively, managers of the engineering, operating, and industrial departments.

THE REZNOR MANUFACTURING COMPANY, Mercer, Pa., has added H. Edsil Barr, formerly consulting engineer, of Erie, Pa., to its staff.

HERMAN RUSSELL, vice-president and general manager of the Rochester Gas and Electric Co., Rochester, N. Y., was recently elected to the board of directors of the Lincoln-Alliance Bank, of Rochester.

W. J. MACDANIELS, general manager and treasurer of the Northern Union Gas Company, New York, N. Y., was recently given a dinner by employees of the company celebrating the twenty-fifth year of his career in the gas industry. One hundred guests were present. George Oakhurst presented Mr. MacDaniels with a quarter century pin. Employees gave him a watch.

F. W. SCHMIDT, division agent, Public Service Electric and Gas Company, Jersey City, N. J., is now general agent for the company at Newark, N. J.

D. W. Chapman

DENISON W. CHAPMAN has been appointed manager of the industrial gas sales department of The Peoples Gas Light and Coke Company, Chicago, Ill. Mr. Chapman entered the gas industry immediately after his graduation from the University of Illinois in 1912. After working in the testing laboratories of the Peoples Company for two years, he was transferred to the industrial gas sales department, soon becoming assistant manager. Mr. Chapman has been especially active in American Gas Association activities, being a member of several committees of the Industrial Gas Section.

P. H. Gadsden

PHILIP H. GADSDEN, a vice-president of the United Gas Improvement Company, Philadelphia, Pa., has again been nominated for election as a director of the United States Chamber of Commerce. Mr. Gadsden is a candidate to represent the second election district on the board. For some years Mr. Gadsden has been prominently identified with the national chamber, having been elected as a director in 1920. In addition, he became a director of the Philadelphia Chamber of Commerce in that same year, subsequently being elected vice-president and, early last year, president. He has also served as a director of the Pennsylvania State Chamber of Commerce.

During the war Mr. Gadsden served as chairman of the National Committee on Public Utility Conditions, representing the interests of the electric, railway and gas companies in connection with their war problems. A native of South Carolina and a lawyer by profession, he retired from the active practice of law to manage and direct local public utilities. It was in 1918 that he was elected to a vice-presidency in the United Gas Improvement Company in charge of its department of public relations.

WILLIAM J. WUESTENFELD, general manager of the Ottumwa Gas Company, Ottumwa, Iowa, has been transferred to Davenport, Iowa, as successor to C. R. Stahl, assistant general manager of the Peoples Light Company. Mr. Stahl was recently advanced to head of the United Light's new properties in the Panhandle district in Texas, as announced in the February issue of THE MONTHLY.

T. C. Roderick, general manager of the Tri-City Railway Company of Illinois, goes to Ottumwa to enter the gas business and to take Mr. Wuestenfeld's place as general manager of the Ottumwa Gas Company. Mr. Roderick, well known in Davenport and the tri-cities, came here from the Grand Rapids Railway Company several years ago as assistant general manager of the Tri-City Railway Company of Iowa, later being transferred to Rock Island as general manager of the Illinois lines of the company.

HUGH M. BEUGLER, formerly vice-president of the Central Hudson Gas & Electric Company, Poughkeepsie, N. Y., in charge of operation, engineering and construction, was named consulting engineer of the Central Hudson Gas & Electric Corporation at a recent organization meeting of the corporation. The board of directors of the corporation held its first meeting early in January, when the corporation, which succeeds the old Central Hudson Gas & Electric Company and its associated companies, was organized. Mr. Beugler is well qualified to act in the capacity of consultant engineer, having had a long record of activity not only with the Central Hudson system but also in other fields of endeavor before he joined the company in 1909.

E. L. FISCHER, engineer, Peoples Light Co., Davenport, Ia., has been promoted to the position of gas engineer of the United Light & Power Company with supervision over all gas properties of the company.

Mr. Fischer first entered the employ of the United Light at Fort Dodge with the Fort Dodge Gas & Electric Company. From Fort Dodge he was transferred to Muscatine as manager of the Muscatine Lighting Company, remaining at Muscatine seven years. He was next transferred to Davenport, where he has been for the past two years as inspecting engineer.

W. J. McElroy, superintendent of the gas plant at Ottumwa for the past two years, is Mr. Fischer's successor.

LOUIS STOTZ is now connected with the National Refrigerating Company, New Haven, Conn., and will have charge of sales of the company's refrigerating unit to gas companies. Mr. Stotz was formerly secretary of the Commercial Section of the American Gas Association, leaving in 1925 to become associated with the Own Your Own Home Exposition.

S. E. Linton

S. E. LINTON has been elected President of the Nashville Gas and Heating Company, Nashville, Tenn. He has been in the employ of the company for the past eleven years, having served as manager for seven, and as vice-president since 1923.

A statement issued by the company shows that in the time Mr. Linton has served with the company the business and number of customers has more than doubled.

DAVID MILNE WATSON, governor of the Gas Light and Coke Company, London, England, and President of the National Gas Council, of England, was recently given the honor of knighthood.

C. M. CRAWFORD, who has been operating manager, Southern Gas & Power Corporation, with headquarters in Philadelphia, Pa., has been made district manager for the southern district of the company. He has established headquarters at Augusta, Ga.

GEORGE M. WHITWELL was elected secretary of the Washington Gas Light Co., Washington, D. C., at a recent special meeting of the board of directors, which reluctantly accepted the resignation of the retiring secretary, William B. Orme. Mr. Whitwell has been assistant secretary of the company for fifteen years.

Resolutions expressing high esteem and affection for the retiring secretary were adopted by the board. Mr. Orme entered the employ of the gas company in 1867 and was soon afterward elected assistant secretary. In 1896 he was elected secretary, maintaining that position until his resignation.

Mr. Whitwell is a native of Washington. He was educated in public schools there as well as in the preparatory school of Columbian College, now George Washington University and Hampden-Sidney, Va. Entering the service of the gas company in 1895 as a stenographer, he successively occupied the positions of second assistant secretary, assistant purchasing agent and assistant secretary. He is president of the Washington Gas Light Co. of Montgomery County, Md., and treasurer of the Gas Company's Employees Beneficial Association.

Edward T. Stafford, second assistant secretary of the company, was promoted to the position of assistant secretary, and Thomas B. Gardner, of the comptroller's office, was elected second assistant secretary.

Gas Must Do Heating

(Continued from page 137)

ciently. "Gas must do the heating" that smoke may be kept from our neighborhoods and schoolrooms and that the pure air so vital to the public health may be as plentiful in cities as in the country. "Gas must do the heating," finally, because it is the heating agent that nature intended for us. Wherefore, if the argument appeals but the senses revolt at the idea of going before the public with a slogan containing the word "must," perhaps it would be as well to submit that everyone "Heat *Naturally* with Gas." The second word contains sufficient shades of meaning to give the advertising fraternity plenty of opportunity.

Hesitatingly and with appreciation of the difficulty attending such an attempt, a plea for a new slogan is submitted for consideration of the gas industry. The foundling may never live to see a door opened to receive it, notwithstanding the fact that the gas man is obliged to fight for every inch of ground he gains, and can use a heartening motto. His present one seems to be too awkward to carry on his lance.

Who will be its first friend?

Analysis of Report

(Continued from page 162)

2. High melting point asphalts refined by air blowing lack adhesion. A study should be made looking to the use of low melting point steam distilled asphalts and to effective economical means of overcoming existing objections and difficulties of transportation.

3. Asphalts refined from heavy Mexican crudes hold out the greatest promise as pipe coating materials.

4. Thickness for thickness asphalts refined from proper crudes are somewhat more effective than coal tar pitch although the adhesion of coal tar pitch is slightly better than that of the high melting point blown asphalts now in use.

5. Coal tar pitch will prove a satisfactory coating only if it is so wrapped that it will be confined. Placed in a heavy coat it will flow off the tap and sides; placed in a thin coat it will deteriorate rapidly.

6. Fabric wrapped coatings last longer and give better protection than when the same coatings are not wrapped. But because of the tendency of fibre wrappings to rot under ground, efforts should be made to devise a wrapping or casing of permanent character which the soil would not affect.

What Technical Section Is Doing

(Continued from page 142)

will be necessary to get the gas to the ultimate consumer in the most economical manner. This will involve a careful study of the existing low pressure transmission systems involving the use of district governors operating under pressure up to 15 lbs. and an analysis to show the proper point at which high pressure distribution utilizing pressures up to 100 lbs. with individual service governors on consumers' premises can be started. The adaptability of plain end cast-iron pipe with various types of joints for high pressure work is now being demonstrated by actual use in many properties, thus overcoming some of the objections to high pressure pipe systems where soil corrosion is a material factor in the use of steel pipe. A great deal of data is being gathered on soil corrosion and use of pipe coatings, all of which studies will be of great value in solving distribution problems.

In many localities high pressure distribution systems are now being used to take care of outlying territory where the higher investment cost in low pressure distribution systems would be economically out of the question.

The time has come not only for careful analysis of distribution problems, but for definite decision as to future procedure. The electrical industry has already met their problems in distribution by the high tension transmission line network, and nearly all the larger cosmopolitan areas are surrounded with high tension belt lines, feeding into city distribution circuits at strategic points.

Much higher distribution voltages are also used, and a greater utilization per pound of copper has been attained by using three-phase, four-wire distribution as compared to the old single-phase system.

Future gas distribution problems will be developed more in new territory than in existing territory already supplied by facilities limited somewhat by present installation, but even these facilities can be greatly augumented by additional sources of supply from high pressure transmission mains.

The high pressure transmission main will take care of greatly increased areas which are constantly developing outside our larger cities, and also the greatly increased peak loads resultant from large industrial and house heating business. This it will do at an economic investment cost and relatively high efficiency. In this way the problems of dehydration will be largely solved, thereby materially reducing maintenance expense on mains, services, governors and meters. All this tends toward the distribution of a uniform quality of fixed gas, which is absolutely essential if gas is to be used as a high grade fuel in modern specialized industry.

UTILIZATION

This involves a careful consideration of the industrial situation to see in what

(Continued on page 186)

Exhibit of the New Haven Gas Light Co. at recent New Haven Progress Exhibition. Officials claim it was the largest exposition ever held under one roof.

Affiliated Association Activities

Southern Gas Association

THE Nineteenth Annual Convention of the Southern Gas Association will be held in Atlanta, Georgia, Tuesday, Wednesday and Thursday, April 19, 20 and 21, 1927. The Biltmore Hotel will be official headquarters.

The Program Committee, with A. D. Whittaker as Chairman, has prepared a strong program of timely subjects to be presented by men of national prominence. Among these items are an address "Private Ownership or Municipal Ownership" by Mr. Ives, vice-president of the Casualty Information Clearing House, Chicago, Ill., and one by Floyd Parsons, editorial director, *Gas Age-Record*.

Among the papers to be presented are the following: "Cleaning Gas of Tar and Oil Vapors," by H. M. Pier, Chicago; "Gas Company Statistics," by H. J. LaWall, The United Gas Improvement Co., Philadelphia; "District Service Men as Salesmen," by H. M. Pace, South Carolina Power Co., Charleston, S. C.; "How One Company Improved Its Public Relations," by Miss Pailet, New Orleans Public Service Inc., New Orleans, La.; "Gas Meters from a Different Angle," by Charles L. Leach, Macon Gas Co., Macon, Ga.; "Industrial Gas," by A. H. Rumbold, Jas. B. Clow Sons, Chicago; "Building a Gas Load," by Thos. F. Kennedy of Henry L. Doherty Co., New York, N. Y.; and "Education," by Edmund S. Dickey, Maryland Meter Co., Baltimore, Md.

The entertainment features are being arranged by M. L. Kane of the Georgia Railway and Power Co., Atlanta, Ga., assisted by Mrs. Beulah Higginbotham. A number of unusual events will be offered including a trip to Stone Mountain.

The conventions of the Southern Gas Association are always of a high order and President A. E. Merchant, Secretary J. P. Connolly and the committees are working hard to make the 1927 Convention excel this high standard.

Canadian Gas Association

AT an Executive Committee meeting of the Canadian Gas Association, held in Toronto, January 12, it was decided to hold the next annual convention some time during the month of June, the exact date and meeting place to be announced later. It was thought that a meeting in June would be a more suitable time for most of the members and that it would not interfere with the vacation periods. A Papers Committee consisting of the following was appointed: J. J. Humphreys, Chairman, R. A. Wallace, V. S. McIntyre, and G. W. Allen.

The Executive Committee also decided to present a memorial to the Government looking for a reduction in the tariff on gas coal or for an extension to manufactured gas companies of the privilege of the drawback of 99 per cent now enjoyed by the by-product coking plants of the country. A deputation was also selected to visit Ottawa on January 18 to interview the Advisory Tariff Board if necessary.

New England Gas Association

A meeting of the Industrial Division of this Association will be held at the Boston City Club, Boston, Mass., at 2 P.M., March 11, 1927 at which an address, "The Manager's Viewpoint of Industrial Departments," will be given by I. T. Haddock, vice-president, Cambridge Gas Light Co., Cambridge, Mass. R. J. Phelan of Worcester, Mass., is the President of the Industrial Division, and J. J. Winn, Jr. of Fall River, Mass., is the secretary.

Mid-West Gas Association

MID-WEST gas men and also women are turning their thoughts toward St. Paul, Minn., where the 1927 Convention of the Mid-West Gas Association will be held on April 20, 21 and 22. Indications already point to a record attendance which this year will for the first time include the ladies.

The Twin Cities offer an abundance of entertainment features and the local committee at St. Paul, under the chairmanship of Louis Stein, is arranging a schedule which will guarantee a wonderful time to everyone attending the Mid-West Convention.

The Program Committee is "running in high" and C. A. Nash, its chairman, is planning a program which will hold 100 per cent of the interest and attention from the first rap of the gavel until the convention adjourns. Every member on the program is a "headliner." Here are a few: F. A. Lemke, of the Humphrey Company, will discuss the "Value and Possibilities of the Water Heating Load and How to Secure It"; W. E. Derwent, of the Geo. D. Roper Corporation, will tell "How to Secure More Gas Sales Per Residential Consumer"; "The Present Status of Gas Refrigeration—Its Practical Application and Possibilities," will be presented by D. J. Young,

consulting engineer, the Electrolux-Servel Corporation; Hon. Frank J. Milhollan, President, Board of Railroad Commissioners of North Dakota, who addressed the American Gas Association at the Public Relations Symposium, will speak on a subject of interest to all utility men; Glenn C. Carnahan, of The Peoples Gas Light and Coke Co., Chicago, will present the "Latest on House Heating and Insulation"; "Home Service From All Angles," "The Blue Star Plan," and other timely subjects will be discussed. The annual banquet is scheduled for Thursday night.

Hotel reservations should be made promptly with the St. Paul Hotel.

Illinois Gas Association

THE program for the convention sessions of this Association to be held in Springfield, Ill., March 17 and 18, was given in the February issue of the MONTHLY. The first joint session with the Illinois State Electric Association and the Illinois Electric Railway Association on March 17 at the Hotel Abraham Lincoln will be addressed by leading men in the industry on the subject of public relations, finance and terminable permits. The second joint session on March 18 has been given to the Illinois Committee on Public Utility Information and the Public Speaking Bureau, who have always provided an excellent program. A women's meeting will be held on the afternoon of March 17 in the Leland Hotel. The representatives of the Illinois Gas Association on the Joint Program Committee are W. A. Bertke, Geo. Steinwedell, P. D. Warren, and H. T. East.

Oklahoma Utilities Association

AN extremely attractive program has been prepared for the Ninth Annual Convention of the Oklahoma Utilities Association to be held at the Huckins Hotel, Oklahoma City, Oklahoma, March 8, 9 and 10, 1927. There will be the usual general sessions and the following division sessions: Gas, telephone, electricity, electric railway, public relations, women's activities, manufacturers' and suppliers'. Numerous exhibits will also be shown. The annual banquet will be in all respects as notable and enjoyable a feature of the convention as any heretofore held. Honorable Graves Leeper, Secretary of State and recognized as a past master in the toastmaster's art, will do the honors for the Association as toastmaster. Earl W. Hodges, of New York, who has an international reputation as an after-dinner speaker, will make the principal address at the banquet. The entertainment features of the convention will be of a nature to give everybody who attends a good time.

Southwestern Public Service Association

PLANS so far arranged for the New Orleans Convention, April 26 to 29, 1927, include general sessions in the afternoon, April 26, and in the forenoons, April 27, 28 and 29. At these general sessions there will be discussed major topics of interest to the entire utility industry and addresses will be made by W. A. Sawyers, President, and L. S. Storrs, Managing Director, American Electric Railway Association; R. F. Pack, President and P. B. Clapp, Managing Director, National Electric Light Association; O. H. Fogg, vice-president, American Gas Association, and others. This will bring in the subject of public relations, in which all the utilities are interested. The two afternoon sessions, April 27 and 28, are set aside for the discussion in divisions of those subjects interesting to the several groups, and among the division meetings will be one on each afternoon devoted to the Gas Section. The programs for these section meetings were not complete at the time the MONTHLY went to press, but Secretary E. N. Willis gives assurance they will be of interest and profit.

Missouri Association of Public Utilities

THE plans for the Annual Convention of this Association, which is to be held at Cape Girardeau, Mo., May 5, 6 and 7, are gradually being shaped. A few of the tentative plans for the program can be given at this time.

Included in the morning session to open at 9 A.M. on Thursday, May 5, will be addresses: "The Responsibility of the Public Utility to the Public and of the Public to the Utility," by Hon. D. G. Taylor, St. Louis; "The Necessity of State Associations of Public Utilities," by Chester C. Smith, vice-president and secretary, Kansas City Power & Light Co.; and "Women's Work in the Public Utility Industry," by Miss Georgia Downey, St. Joseph Railway Light Heat & Power Co.

On the afternoon of May 5 there will be three sectional meetings, gas, electric, and electric railway. E. Dickey, Citizens Gas Co., Hannibal, Mo., will preside at the gas section meeting at which the following papers will be given: "Quantity Sales of Gas," Mr. Baker, Wyandotte Co. Gas Co., Kansas City; "Future of Manufactured Gas in Smaller Communities," by E. V. Dickey; "The Best B.t.u. Content for Manufactured Gas for Missouri Users," by a speaker to be announced later.

The session on May 6 will open at 10 A.M. with an address "The Values that Public Utilities Confer on Land," by a speaker to be selected. There will also be an address by E. E. Boehme of the International Industry and Construction Co., and another "Assuring Continuity of Service from Transmission Line

Distributing Systems," by Frank Shelton. A dinner dance will be held on the evening of this day with Earl W. Hodges, Director of Public Relations, H. L. Doherty & Company, as the speaker.

The program on May 7 includes committee reports, election of officers, and an address "Design and Use of Rate Schedules to Promote Use of Service," by H. H. Kuhn, Kansas City Power & Light Co.

Empire State Gas & Electric Association

BRIARCLIFF Manor is the place and Thursday and Friday, March 10 and 11, the time for the annual meeting of the Gas Section of the Empire State Gas & Electric Association. The program follows:

On Thursday morning, March 10, 10 A.M., H. M. Brundage, President of the Empire State Gas & Electric Association, will deliver the address of welcome, after which the following papers will be presented: "Present Developments in Gas Manufacturing Methods," by H. K. Seeley, superintendent gas manufacturing, Syracuse Lighting Co.; "The Relation Between the Size of Transmission Pipe Lines and Operating Costs of Compressing Gas at Different Pressures to Transmit Gas Long Distances," by J. K. Crowell, dist. engineer, Westchester Lighting Co.; "Results Obtained from Scrubbing Gas for Naphthalene," by H. W. Terry, Jr., Consolidated Gas Co. of N. Y.

At the afternoon session, starting at 2 P.M., the following papers will be presented: "Possible Methods for Metering Gas in Large Volumes on Consumers' Premises," by C. F. Ribley, distribution supt., Adirondack Power & Light Co.; "Sales Methods for Gas Coke," by R. C. Edmunds, asst. to gen. mgr., Utica Gas & Electric Co.; "Possibilities of Static Storage Used as Part of an Intermediate Pressure System," by Joseph Lucena, supt. dist., Syracuse Lighting Co.; and "Survey of Possible Uses and Sales of Ammonia Products in New York State," by R. E. Kruger, asst. engr. of Mfg., Rochester Gas & Electric Corp.

The program for the session on Friday morning, March 11, will be "Review of Activities of the A. G. A. Technical Section," by W. C. Beckjord, Chairman; "Proposed Construction Methods for High Pressure Transmission Mains," by L. E. RaRow, gas engineer, Utica Gas & Electric Co.; Report of Committee on Calorimetry Reports, Report of Committee on Two-Main Construction on Wide Streets, and Report of Nominating Committee.

There will be a motion picture and vaudeville performance Thursday night. Buses will meet the Empire State Express at Harmon on Wednesday evening.

J. E. Cooper, the Chairman of the Gas Section, will preside at the meeting.

New Jersey Gas Association

THE annual mid-year meeting of this Association was held at the Stacy-Trent Hotel, Trenton, N. J., January 28, with more than 500 in attendance. The program was especially interesting and dealt with subjects that were both timely and important. One of the features of the meeting was the discussion that followed the presentation of each of the formal papers.

President L. N. Yetter opened the meeting with an interesting talk, which was followed by an address of welcome by F. W. Donnelly, Mayor of Trenton. H. H. Newman responded for the association.

"Increasing Revenue by Decreasing Unaccounted for Gas," by Harry Ellis; "House Heating Is Here, How Shall We Best Handle It?" by J. P. Leinroth; "How Can the Unprofitable Customer Be Made Profitable?" by H. H. Stockton; and "Employment and Development of Personnel," by W. S. R. Dickinson, were the papers presented. All these were important papers and covered vital phases of the gas man's work today. The members followed each address with careful attention. The discussion of the papers was lively, especially that of Chester Gray on the paper of Mr. Ellis, that of H. D. Gillingham and Mahlon Coombs on the house heating paper, and that of C. S. Reed and J. P. Hanlan on Mr. Stockton's.

An interesting part of the meeting was the playlet presented by members of the Association, "A Man May Be Down But He Isn't Out." A. J. Van Brunt played the part of the safety director.

C. W. Berghorn, secretary of the Industrial Gas Section of the American Gas Association, gave a short talk on the work of the Association, giving emphasis to the growing value of the A. G. A. to its members.

REGARDING REPRINTS

ONCE AGAIN we wish to remind our contributors and readers that reprints of any material published in the American Gas Association MONTHLY may be obtained in accordance with the following scale:

100 copies, 1 page	$ 2.00
Additional 100's	.40
100 copies, 2 pages	3.00
Additional 100's	.40
100 copies, 4 pages	7.00
Additional 100's	.75
100 copies, 8 pages	10.75
Additional 100's	1.05

George E. Woods Dies at New York Home

Was Prominent Gas Engineer, Having Been in the Industry Since His Fourteenth Year

GEORGE Edward Woods, a vice-president of the Consolidated Gas Company of New York, died February 5, 1927, at his residence, Astoria, L. I.

The late Geo. E. Woods

Mr. Woods was born in Henderson, Ky., on February 15, 1870, and when a small child his parents moved to Evansville, Ind., where he attended school and incidentally laid the ground work for his career as an outstanding gas engineer by entering the employ of the Evansville Gas and Electric Company, where Isaac Baxter, an uncle of Mr. Woods of today, was the engineer of the company. Mr. Woods was then fourteen years old. Mr. Baxter in 1899 became chief gas engineer of the Detroit (Mich.) Gas Company and took the ambitious and promising nineteen-year-old Woods with him. George E. Woods always acknowledged that he patterned and fashioned his successful career through a close study and observance of the methods of Mr. Baxter. Mr. Woods became Assistant Superintendent of the Detroit Gas Company and resigned that position to become (on November 1, 1891) secretary and manager of the Pulaski Gas Light Company and the Little Rock Electric Light Company, Little Rock, Ark.

His connection with that company was of short duration—six months. Mr. Woods saw an advertisement in the *American Gas Light Journal* stating that the Standard Gas Light Company of the City of New York wanted a gas engineer.

Mr. Woods became assistant engineer of the Standard Gas Light Company of the City of New York on May 22, 1892, and in 1896 was made chief engineer of that company, and two years later he became the company's general superintendent. Retaining his position as chief engineer of the Standard, in March, 1901, Mr. Woods became the engineer of manufacture of the Consolidated Gas Company of New York at the request of the late Harrison E. Gawtry, the President of the latter company. Mr. Woods became assistant chief engineer and engineer of manufacture of the Consolidated Gas Company. He succeeded the late William H. Bradley as chief engineer of the Consolidated in 1922. That year Mr. Woods was elected President of the Astoria Light, Heat and Power Company, and until January, 1925, when he resigned, he was President of the Central Union Gas Company. At the time of his death Mr. Woods was consulting engineer of the New York and Queens Gas Company and the Westchester Lighting Company, and treasurer of the National Coke and Coal Company.

Mr. Woods was a member of the American Gas Association, the Society of Gas Engineering (of which he was president for fifteen years), the Society of Gas Lighting, the Illuminating Engineering Society, the American Society of Mechanical Engineers, and several other technical organizations.

ACCOUNTING SECTION
A. L. TOSSELL, Chairman EDWARD PORTER, Vice-Chairman
H. W. HARTMAN, Secretary

Is A Collector An Asset?

The Collection of Bills Is an Art, Too Often Overlooked by the Gas Companies; Need for Trained Men

By W. C. ARCHBOLD
Manager Credits and Collections, The Syracuse Lighting Co., Inc.

THE question: "How much does your stock pay?"

The answer: "It pays six dollars per share per year and one-fourth of this is paid each quarter."

The customer considered the employee's statement and said, "I'll subscribe for twenty shares. Now I'll tell you one of my principal reasons for doing so."

It seems that several years ago the customer was embarrassed financially. There was sickness in his family and he had suffered from lack of employment. It looked as though the last straw had come when a gas and electric collector appeared to collect the past due bill or discontinue the service. Much to the customer's surprise, he was allowed several days to raise sufficient funds to pay the bill and thus a serious condition was avoided. Would this customer have purchased the stock if the company had discontinued his service? It is not likely.

In the collection of delinquent bills, there should be considered the financial problems of the company and the friendship of the customer. This calls for considerable judgment and if what some people say is true, there are few collectors who possess this quality.

In Syracuse there are an average of about five thousand customers each month that lose the discount and receive two notices before we call them on the phone or send a representative to see them.

Among these five thousand are a great variety of nationalities and different types of characters. Many are people who live from hand to mouth. They were delinquent five years ago and probably will be five years hence. Then there are those who have for various reasons become delinquent for the first time. They may have been away or had sickness or overlooked the bills that were sent them. The list also includes certain business establishments, some of which from a credit standpoint are hazardous. Then we must not forget that we have customers who are on the books of few other concerns. These include irresponsible persons, dead beats, fly by nights, and others whom we must serve and get along with as best we can, for you know a utility under the law must serve a customer whether he is good or bad.

A collector who starts out with fifty or sixty bills in the morning makes a good many decisions before the day is over. He must size up his customer and make his decision, and to do this he should be trained in the art of collecting, be familiar with the standing of the customers he calls on, and possess the personality of a salesman.

Recently a good instance of salesmanship occurred when a customer came to the collection department and said, "I wonder if your collector can get credit for collecting this bill. I know he gets a commission of some sort and I certainly would like to have him get something for this because he was wonderful about it."

Few people can imagine how it feels to be deprived of gas and electric service unless they have had the experience. The

inconvenience and humiliation tend to embitter the customer against the company, which makes it almost impossible to win his friendship.

It frequently happens that the company acts too slowly before a service is cut off, but before it acts at all it should be sure that funds are not forthcoming from the customer.

A good way to check collectors is to keep a record of the services each one cuts off and the number of services that are restored the same day that they are cut off. If a collector's percentage of services restored to the number cut off is high, it indicates that the collector isn't interested in making an effort to get the money but prefers to take the line of least resistance.

Perhaps the stigma that seems to be attached to collection work goes back to the old days when the strong-arm method was recognized as to the only way to bring in the money, and as a result the praises of a collector are seldom sung. "Polite persistence" and the systematic follow-up of delinquent accounts have largely replaced the old way of handling collections. It is a good guess that the day is not far distant when the true worth of the collector who brings in the money and wins popularity through courtesy and consideration will be recognized.

Electrical Industry Bows to Laboratory

A four-page broadside, captioned "Advocating a Laboratory for the Electrical Industry," was recently given general distribution by the Electrical Testing Laboratories, of New York, N. Y.

Under the title "Note the extent to which the American Gas Association has already carried its testing program," mention is made of the resolution adopted at the recent convention of the A. G. A. in Atlantic City, N. J., regarding the sale of approved appliances.

THE title of the article on page 123 of the February MONTHLY was misleading. The coke recovery plant of the Consolidated Gas, Electric Light and Power Company, Baltimore, Md., reclaims 18 per cent of the mixture of coke and ashes handled, and not of the coke handled.

Work With Architects

TO promote the dissemination of material to architects, the Architects and Builders Service Committee of the Commercial Section has arranged to join the Producers' Research Council, an organization of 40 nationally known manufacturers affiliated with the American Institute of Architects through the Scientific Research Department of the Institute.

Material suitable for architects will be prepared by the various committees and published in the bulletins of the Producers' Research Council.

Industrial Gas Booklet

GAS, the Ideal Factory Fuel, is the title of the booklet sent by the Association to those manufacturers who, on seeing the industrial gas advertisements in the trade papers, write for further information.

The Association has had many requests to supply quantities of these booklets directly to the gas companies. A reprint has been made, and copies can now be furnished at ten cents each.

Orders should be sent to Association Headquarters.

COMPANY CHANGES

THE KINGSTON GAS AND ELECTRIC COMPANY, Kingston, N. Y., the Upper Hudson Electric and Railroad Company, Catskill, N. Y., The Central Hudson Gas and Electric Company, Poughkeepsie, N. Y., are now operating under the name of the Central Hudson Gas and Electric Corporation.

THE MONROE LIGHT AND FUEL COMPANY, Monroe, Wisc., is now known as the Peoples Wisconsin Hydro Electric Corporation, Monroe, Wisc.

ANNOUNCEMENT is made of the formation of a new company known as Semet-Solvay Engineering Corporation, 40 Rector Street, New York City, Division of Allied Chemical & Dye Corporation.

The new company is a consolidation of the Steere Engineering Company of Detroit, and the engineering and construction departments of the Semet-Solvay Company of New York.

The Elliott-Fisher Company has acquired the Sundstrand Corporation, and the products of both the Elliott-Fisher and the Sundstrand Companies will be marketed by the General Office Equipment Corporation.

PUBLICITY AND ADVERTISING SECTION
HARLOW C. CLARK, Chairman E. FRANK GARDINER, Vice-Chairman
CHARLES W. PERSON, Secretary

National News Makes Local Copy

The Why of Utilizing News of the Gas Industry in the Newspaper Advertisements Over the Local Company's Name

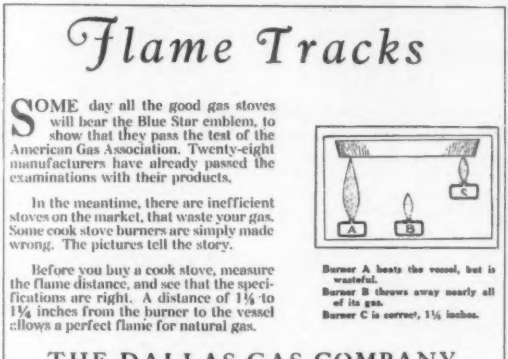
By LOIS UPSHAW
Advertising Manager, The Dallas Gas Company, Dallas, Texas

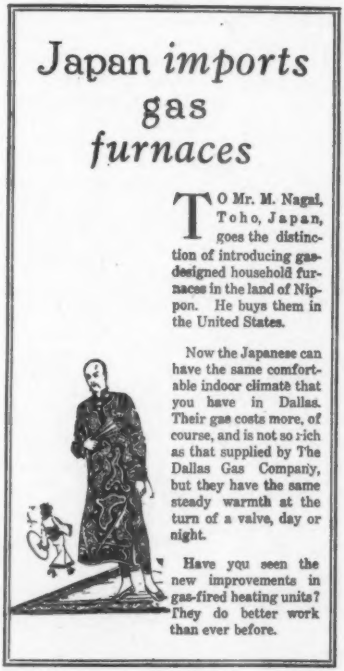
IN advertising an article as serene as an invisible fuel that stays the same price and same quality year in and year out, you do feel the need of a change, as Captain Applejack said when he set out to find his great-uncle's pirate gold. You need news. People enjoy hearing about something that has happened, and particularly so if it has happened away from home. So, between a reminder to keep the flame decent in the cook stove, and the announcement of a new and important industrial gas installation, we run a piece of news from out in the world somewhere. It manages to fit into the Dallas picture, this piece of news, with a moral brought to bear with perfect neatness.

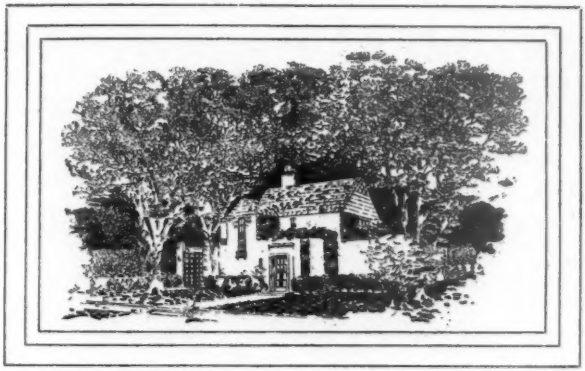
The American Gas Association is our first source of outside news. Out of *Gas Progress*, the semi-monthly news sheet of the Association and the A. G. A. MONTHLY, we hear news about the Architects' Competition, for instance, in ample gas provision for homes. We get stirring reports about the Blue Star emblem, and we learn that M. Nagai, of Tokio, has been shopping in this country for gas furnaces.

Our Dallas friends like to read about these things, when printed in an inviting manner, so why not tell them? They would never find out otherwise. To be sure, this probably never sent anybody pell mell to turn on more gas. Some advertisers might insist that this newspaper space—costly as it truly is, goodness knows—ought to be used for "hard hammering" for the gas company's own self.

But most of us who study the gas customer's point of view are convinced that in


Flame Tracks
SOME day all the good gas stoves will bear the Blue Star emblem, to show that they pass the test of the American Gas Association. Twenty-eight manufacturers have already passed the examinations with their products.
In the meantime, there are inefficient stoves on the market, that waste your gas. Some cook stove burners are simply made wrong. The pictures tell the story.
Before you buy a cook stove, measure the flame distance, and see that the specifications are right. A distance of 1¼ to 1¾ inches from the burner to the vessel allows a perfect flame for natural gas.
A
B
C
Burner A heats the vessel, but is wasteful.
Burner B throws away nearly all of its gas.
Burner C is correct, 1½ inches.
THE DALLAS GAS COMPANY
Less than 2 cents' worth of Dallas gas can cook a good dinner for 6 hungry people. (Laboratory tests at the University of Ohio, reported by Bureau of Mines).


Japan imports gas furnaces
TO Mr. M. Nagai, Toho, Japan, goes the distinction of introducing gas-designed household furnaces in the land of Nippon. He buys them in the United States.
Now the Japanese can have the same comfortable indoor climate that you have in Dallas. Their gas costs more, of course, and is not so rich as that supplied by The Dallas Gas Company, but they have the same steady warmth at the turn of a valve, day or night.
Have you seen the new improvements in gas-fired heating units? They do better work than ever before.



Prize Dwelling . . . American Design with Adaptations . . . Perfect Gas Provision

This is the design that won the $1,000 prize in the small house competition conducted by the American Gas Association. In cream brick, with timber gables and a French entrance, it shows a clever adaptation of different periods to make a charming American style. Mr. Russell S. Simpson of Cleveland is the architect. The prize-winning house has the following gas outlets:

4 Fireplace Heaters
2 Wall Heaters
Incinerator
Cook Stove
Laundry Stove
Laundry Dryer
Water Heater
Garage Heater
Central Heating System
(for vapor, steam, hot water or warm air)

This house with its prize gas provision would be quite the usual thing in Dallas, where the people have been brought up to use their natural gas for every purpose. Dallas gas is the richest, cleanest, and most economical of all fuels. No soot. No greasy condensation. No handling. It comes into town from four directions in a plentiful supply—in 16-inch trunk lines from two Oklahoma fields, an 8-inch feed line from the big line at Handley, and the new 18-inch trunk line from West Texas.

Last year this untouched fuel cost the households of Dallas and suburbs only $2,825,000, while the same heat value in coal or oil would have cost at least $6,400,000.

So you see what it means to live in one of the finest-fueled cities of the world.

THE DALLAS GAS COMPANY

this business particularly we need to interest our friends, rather than to shout at them and pound our fist. We cultivate this friendship by being friendly ourselves. Since we have nothing but gas to talk about (in Dallas we do not even sell appliances), we at least try to put a "conversational interest" into our advertising sometimes, so that the people will think of us as a likeable neighbor instead of a meter brigade. An advertisment in Dallas giving a bit of attractively set national or international gas news has a certain zest that the Dallas citizen unconsciously enjoys. He may not give it more than three seconds in scanning his newspaper, but he gets an impression, and these impressions are the stuff that goes to make his opinion of gas and the gas company. The fact that the gas company in his town is aware of the international affairs of the gas industry gives him a little sensation of importance. It seems to strengthen the company's authority.

In the meantime, the gas company itself comes to feel its importance a little, in associating national publicity in its advertising. This is good for us now and then. It stimulates us to new care and new ideas, and raises the company standards as naturally as a balmy sun lifts a tulip stalk. You may keep on hand the regulation rock-ribbed purpose to furnish your city the best gas service possible, and you may love sincerely your business and your public, but you need fresh associations to stir your mettle. You need to "step out" occasionally.

Therefore, as a tonic, a pleasure, and to produce business, if you please, we frequently print gas news from beyond the city limits. It always happens to revolve around something desirable and attainable to a Dallas household, so that it nurtures the buying impulse. At the same time, it carries a light-hearted cosmopolitan air that takes us out of the class of plain, every-day utility dogmatics. At least, we hope it does!

CHEMICAL ELEMENT 61

First to be born on American Soil

OUT of 400 pounds of gas light mantle material donated by a gas light manufacturer, the University of Illinois chemists found that rare earth element Number 61, named Illinium.

The gas industry has been co-operating in the world's scientific research since 1808, when William Murdoch first piped his gas into the Soho engine works. It was the sticky mess left over in condensers at a coal-gas manufacturing plant that developed coal-tar dyes.

The DALLAS GAS COMPANY

Public Service Men Learn of Company

THE *Public Service News,* published twice a month for the employees of the Public Service Electric and Gas Company, the Public Service Railway Company, and the Public Service Production Company, of Newark, N. J., is publishing comprehensive articles on the various departments of the Public Service company. This is done by signed articles by officials of each of the departments.

Northwestern Univ. Responds

(Continued from page 132)

lems of public utilities is being particularly emphasized. Formal instruction in the graduate division is offered in five courses covering, *Principles of Public Utility Economics, Principles of Public Utility Regulation, Public Utility Industrial Relations, Public Utility Rates and Ratemaking* and *Public Utility Research Seminar.* The Institute for Research in Land Economics and Public Utilities, affiliated with Northwestern University, cooperates in the program of instruction and in its research work affords unusual opportunities for graduate research study under supervision and direction of its staff.

Our Own Pills

(Continued from page 146)

for home heating. In Ocean City, still further south in the Jersey Central territory, one year-round hotel has installed gas-fired boilers, and with satisfactory results.

The introduction of the gas-fired boiler in resort territory, the Jersey Central is learning, is the greatest seasonal load balancer yet devised. Two years of pioneering in this field have established the gas-fired boiler as a fixture beyond any doubt.

Resort territory, however, is by no means the limit of gas-fired boiler activity. Fired with the success of the Jersey campaign, the new business department turned to the Western United Gas and Electric Company, which serves a territory suburban to Chicago. There, too, signal success has attended the campaign.

At Newport News, in the Virginia Public Service Company territory, another subsidiary of National Public Service Corporation, the gas-fired boiler is making good headway. House heating at Wilmington, N. C. (in the territory of the Tidewater Power Company, also a Fitkin Utility), is also getting underway.

A salesman who has been especially successful in the Jersey territory was asked what his most telling sales point is.

"It's a combination," he said, thoughtfully, and then added: "The idea of having no coal to shovel and ashes to handle appeals—that and the fact that where—I guess it's the care of the old furnace that does it, though, at that. You see if a furnace caretaker is running the old stove, he isn't on the job as the housewife would like to have him and he's always taking ashes out at the wrong time. Then if the head of the house is fussy about that sort of thing and does the work himself, it is not so good if he decides, suddenly, to run up to New York or drops into the club for dinner. It's the guarantee of steady heat, controlled by a button in the kitchen—it's the general idea that the gas-fired boiler just about does what you want it to do without jockeying it or nursing it."

The New Era of Gas

(Continued from page 143)

and storm windows. Insulation alone or in combination with weather stripping or storm windows saves from 25 per cent to 72 per cent on gas bills. Thereby, in very short order, the installations of any of these heat savers will be paid for in savings on fuel. Consequently the gas-fired furnace becomes an available essential and not a luxury.

"Of all inventions that we have seen so far with gas as the essential element, the most impressive is the new gas iceless refrigerator of which there are now about three on the market. This takes iceless refrigeration into the areas where there is neither ice delivery regularly nor electricity. The mechanism is simple, compact and silent, with no moving parts and is piped from the regular gas supply. For the smallest outlay of expense you have gas-made ice.

"Besides the actual manufactured things, the gas companies aspire and conspire to be helpful to you. You can go to cooking classes, you can listen to radio classes on gas usage, you can get tons of useful literature on cookery and heating. If you realized all that the gas companies and electric companies are trying to do to help the consumer, you would rejoice indeed at the humanity of some of our corporations. Some companies even have interior decoration classes. In fact, they take up all home problems and try to simplify life for the house owner and housewife. Great staffs of human, home economic women with diplomas and degrees are ever at the service of the consumer, and the only limitation on this service rests with the consumer herself or himself."

MANUFACTURERS SECTION
W. E. STEINWEDELL, Chairman H. L. WHITELAW, Vice-Chairman
C. W. BERGHORN, Secretary

Some Facts About Food Shrinkage

Recent Tests Show That Foods Lose or Gain Weight Regardless of Type of Appliance Used

By I. V. BRUMBAUGH
Research Laboratory, American Stove Co., St. Louis, Mo.

THERE are some manufacturers of cooking appliances who are advertising quite extensively that foods cooked with other makes or types of cooking appliances shrink much more than when cooked with those made by them. These advertisements erroneously lead the reader to believe that all foods shrink during the cooking process.

The implication in every case is that no matter what food is cooked, a portion of the food is lost in the cooking process, and that as a result the housewife is losing food which has a monetary value.

It has been observed that both electric range and gas range manufacturers have frequently been guilty of statements of this character. Claims are made that foods lose as much as eight per cent more in weight when cooked with one range than with another.

Some recently published tests show that an average saving of one pound two ounces of food per meal was obtained by a certain type of range as compared with other types of ranges.

In another instance, the results of tests are being advertised which show a loss from food shrinkage of only seven per cent during the cooking of a meal with the advertised type of range, while cooking the same kinds of food with a range having an oven heat regulator shows a loss of 19 per cent.

In other words, the manufacturer claims that the loss from food shrinkage was over 2½ times as much with the competitor's ranges as with their own make. Some of the foods that were cooked to make the comparison were prunes, peaches, lima beans, and potatoes.

The selection of foods which was made for the comparative purposes is rather curious, for among them are prunes and peaches, which are dried products, and must be soaked prior to cooking. It is apparent that soaking increases the weight of these foods. The results of the comparison were published in advertisements appearing from time to time in various papers appealing to the housewife. The advertisement showed the following:

	Advertised Type of Range	*Range with Oven Heat Regulator*
Prunes	½% Loss in Weight	13½% Loss in Weight
Peaches	2½% " " "	14½% " " "
Lima Beans	4 % " " "	19½% " " "
Potatoes	23 % " " "	32 % " " "

Note that the prunes, peaches, lima beans and potatoes are all shown as having lost weight. It is implied, of course, that the loss in weight was food, which had a direct monetary value translatable into terms of so many pounds of peaches or so many pounds of prunes which had disappeared in the cooking process and that the greater loss occurred with the oven heat regulator gas range.

It is particularly interesting to see that

	Uncooked Weight	*After Soaking Over-night*	*After Being Cooked by Advertised Type of Range*	*After Being Cooked in Oven Controlled by a Heat Regulator*
Prunes (Santa Clara)	2 Lbs.	2 Lbs. 14 Oz.	2 Lbs. 14½ Oz.	2 Lbs. 15 Oz.
Peaches (Calif. Evap.)	2 Lbs.	4 Lbs. 2 Oz.	4 Lbs. 3½ Oz.	4 Lbs. 3½ Oz.
Lima Beans (Calif.)	2 Lbs.	4 Lbs. 6½ Oz.	5 Lbs. 1½ Oz.	5 Lbs. 2 Oz.
Potatoes, Boiled (Burbank)	2 Lbs.	————	2 Lbs. 7½ Oz.	2 Lbs. 6½ Oz.

with a gas range equipped with an oven heat regulator, it is claimed that the potatoes lost ⅓ of their weight. Obviously, the loss in weight was due to water. To test the validity of these many claims, the following experiments were made in the Research Laboratory of the American Stove Company.

Different types of ranges were tested, using different foods to determine if the design of the range in any way affected the shrinkage of foods during cooking. From the start it seemed apparent that dried fruits and vegetables should increase their weight rather than shrink during the cooking process. On a theoretical basis, it seemed unlikely that any difference in weight would result when cooking food in covered vessels, whether the heat was due to one fuel or another if the cooking procedure was identical in each case.

PRUNES, PEACHES, LIMA BEANS, AND BOILED POTATOES

The prunes, peaches, and lima beans were weighed and then soaked in water over-night before being cooked. Most cooking authorities recommend that dried fruits and dried vegetables should be soaked in water for this length of time.

The following morning the water was drained off of these foods before they were weighed in order to find out how much water each kind had absorbed.

The water was then added and the foods were cooked according to the instructions supplied with each range. At the end of the cooking period, the water (juice) was again completely drained off before weighing to ascertain if the cooking process had changed the weight of the solid food.

The tabulation given above shows the weight of the uncooked foods, their weight after soaking, and their cooked weight.

The above tabulation shows that prunes and peaches increased slightly in weight during cooking; also, that the increase in weight of lima beans and boiled potatoes was quite pronounced.

It is of interest to note that soaking the peaches and lima beans caused them to more than double their original weight because of the water they absorbed.

The per cent of increase in weight, during cooking, of prunes, peaches, lima beans, and potatoes, is given at the bottom of the page.

Three very important conclusions are readily derived from these figures, namely:

1. Dried fruits (prunes and peaches), dried vegetables (lima beans), and boiled potatoes do not lose weight during cooking.
2. The increase in weight of these foods during cooking is not appre-

	Advertised Type of Range		*Range with Oven Heat Regulator*	
Prunes	1 %	Increase	2 %	Increase
Peaches	2½ %	"	2½ %	"
Lima Beans	15½ %	"	16½ %	"
Potatoes	*23½ %	"	20½ %	"

*Potatoes were slightly soggy.

ciably different with either a range having an oven heat regulator or one without.

3. Advertising which shows that one range causes more or less shrinkage than another is inaccurate.

ROAST PORK, BAKED APPLES, CANDIED SWEET POTATOES, AND INDIAN PUDDING

Approximately the same quantity of each kind of food was cooked in the ovens of five different makes of gas ranges. The oven of one of the ranges was of the type referred to. The ovens of the other four makes of ranges were of the ventilated type, which is the kind of oven most widely used. Each of these ventilated ovens (Ranges Nos. 1, 2, 3, and 4) was equipped with an oven heat regulator, so as to avoid any guesswork in trying to regulate the oven heat.

The accompanying tabulation shows the weight of each kind of food before it was cooked and the decrease in weight that occured during cooking. All of these five different foods were cooked at the same time and according to "whole meal" instructions.

Carrying on the research work

It will be observed that the largest per cent of decrease in weight was obtained with the baked apples. It should not be expected that food like apples and candied sweet potatoes could be cooked in uncovered utensils without an appreciable decrease in weight, which is mostly moisture (water).

When Indian pudding and tomatoes and onions are cooked, some steam (water vapor) escapes and this accounts for the decrease in weight, even though the utensils are covered.

WEIGHT OF FOODS BEFORE COOKING AND THEIR DECREASE IN WEIGHT WHEN COOKED

	Weight of Food Before Cooking	*Decrease in Weight of Food When Cooked*	*Per Cent Decrease in Weight of Food*	
	ROAST PORK			
Range No. 1	5 Lbs. 1½ Oz.	14 Oz.	17 %	Av. = 17½%
" No. 2	5 Lbs. 1 Oz.	1 Lb. 4 Oz.	24½%	
" No. 3	5 Lbs. ½ Oz.	10½ Oz.	13 %	
" No. 4	5 Lbs.	11½ Oz.	14½%	
(Advertised Type)	5 Lbs. 1½ Oz	1 Lb. 1 Oz.	21 %	
	CANDIED SWEET POTATOES			
Range No. 1	1 Lb. 7½ Oz.	4½ Oz.	19 %	Av. = 17½%
" No. 2	1 Lb. 10 Oz.	5½ Oz.	21 %	
" No. 3	1 Lb. 9 Oz.	3½ Oz.	14 %	
" No. 4	1 Lb. 5 Oz.	3½ Oz.	16½%	
(Advertised Type)	1 Lb. 10 Oz.	6 Oz.	23 %	
	BAKED APPLES			
Range No. 1	2 Lbs. 3 Oz.	9½ Oz.	27 %	Av. = 25½%
" No. 2	1 Lb. 14½ Oz.	9½ Oz.	31 %	
" No. 3	2 Lbs.	6 Oz.	19 %	
" No. 4	1 Lb. 14 Oz.	7½ Oz.	25 %	
(Advertised Type)	1 Lb. 14½ Oz.	7 Oz.	23 %	
	TOMATOES AND ONIONS			
Range No. 1	2 Lbs. 1 Oz.	1½ Oz.	4½%	Av. = 5%
" No. 2	2 Lbs. ½ Oz.	2 Oz.	6 %	
" No. 3	2 Lbs. ½ Oz	2 Oz.	6 %	
" No. 4	1 Lb. 15½ Oz.	1 Oz.	3 %	
(Advertised Type)	2 Lbs. ½ Oz.	1 Oz.	3 %	
	INDIAN PUDDING			
Range No. 1	1 Lb. 11 Oz.	3½ Oz.	13 %	Av. = 14%
" No. 2	1 Lb. 7½ Oz.	3½ Oz.	15 %	
" No. 3	1 Lb. 8 Oz.	3 Oz.	12 %	
" No. 4	1 Lb. 8 Oz.	3½ Oz.	14 %	
(Advertised Type)	1 Lb. 7½ Oz.	3 Oz.	13 %	

During the roasting of meat, grease and juices are extracted which cause the decrease in weight. The juices consist mostly of water, which has no food value. Much of the grease and juice is retained in the pan and is used for different purposes and cannot be figured as a total loss.

There are certain variations, however, that greatly affect the results when making tests of this kind. It is impossible, for example, to obtain cuts of meats which have exactly the same amount of fat and produce the same amount of grease and juices. Consequently, the amount of grease and juices that are given off by roasts of the same kind of meat will vary widely. This is clearly shown by the results of the tests.

It is believed that no matter how a gas range is constructed there is no way to avoid a decrease in weight when such foods as roast pork, candied sweet potatoes, baked apples, etc., are properly cooked.

Because the ovens of ranges Nos. 1, 2, 3, and 4 are all of the ventilated type, the per cent of decrease in weight of these different foods are averaged in the tabulation. When one compares these averages with the per cent decrease obtained with the advertised type of range, it will be seen that the decrease in weight is about the same.

This shows that these foods have about the same change of weight with one type of range as with another.

Certain types of foods are not appetizing unless a portion of their moisture is driven off, which necessarily means a decrease in weight and this condition holds true regardless of the type of the range. Foods of this kind are usually cooked in uncovered utensils.

There are a few foods which must be "boiled or cooked down." Of what concern is it if some foods decrease in weight owing to the water that must necessarily be evaporated, if the cooked food is appetizing?

It requires a definite amount of heat to enter into a covered pan to cook the contents properly. If the heat is evenly distributed, the type of the oven that furnishes the heat should have no bearing on the results, provided that the required amount of heat is supplied at the proper rate and for the proper period of time.

The tests proved conclusively that the foods, except the meats, which were cooked in covered utensils, showed no appreciable difference in change of weight with the different types of ranges. The meat would probably have shown the same change in weight with each range, if it were possible to obtain cuts of meat that were exactly alike.

The theory that the shrinkage of food varies with different types of appliances has been found to exist even in the minds of some of the leading cooking authorities of the country. It is felt that the time has come when this subject should be considered from the proper viewpoint.

Successful cooking consists not in the overall weight of food served per meal, but in the quality of the cooking, supplemented by the choice of the most desirable foods from a dietetic viewpoint, prepared in a manner that is appetizing and attractive. To aid in the accomplishment of this is the purpose of the range, and to advertise or to imply that shrinkage of food is an issue to place before the public mind is obviously inaccurate.

It would be better to cease suggesting that evaporated water has food value that can be computed in dollars and cents, and to urge upon American women the advantages of cooking at home, and of learning in some measure the principles of correct diet, to which end concerted advertising and sales efforts of all manufacturers could well be directed.

A public policy of this nature would surely be mutually beneficial to manufacturers of appliances, the utilities that furnish fuel, and the users of cooking appliances.

INDUSTRIAL GAS SECTION
H. O. LOEBELL, Chairman F. C. MACKEY, Vice-Chairman
C. W. BERGHORN, Secretary

Science Becomes a Salesman

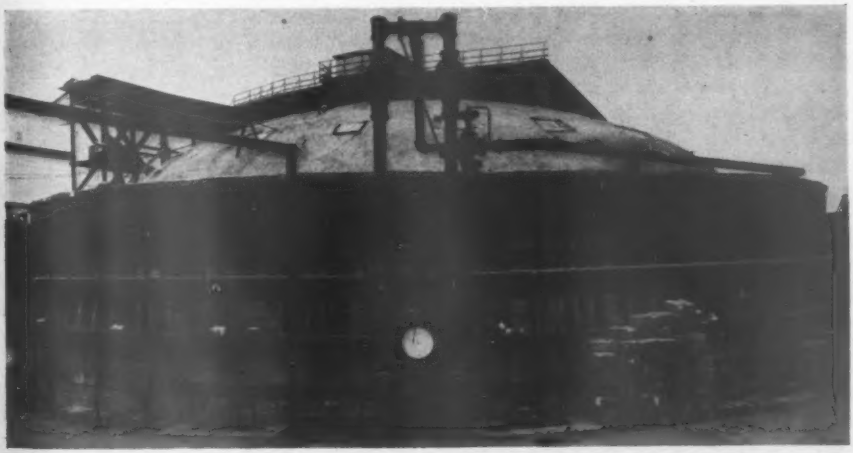
$500,000 Research Program of the Industrial Gas Section Will Develop This Type of Utilization

THE half million dollar research program to develop the industrial use of manufactured gas is well under way. Already several important steps have been taken, and the progress being made is far in advance of what was originally expected.

A preliminary survey of typical situations indicated that research should be conducted in the following fields: Foodstuffs, non-ferrous metals, forging, heat treating, drying, ceramics, and miscellaneous.

Contact with the American Institute of Bakers has been established for research work in the fundamental principles of baking related to the use of gas. The first of the fundamental problems related to ovens to be undertaken is the determination of the type of heat which produces the best bread. A test oven has been constructed, composed of three chambers. Each one of these chambers will have a different form of heat, the first indirect, the second convected, and the third radiant.

This oven is set up in the American Institute of Bakers' laboratory in Chicago and the determinations of the effect of these various types of heat on breads of definite analysis will be made. When it is considered that the baking industry represents a potential load of thirty-four billion cu.ft. annually to the gas industry, it will be appreciated that comprehensive activities in the line are warranted. However, even in the face of the tremendous value of this load, even today the fundamental knowledge, such as the best type of heat for bread has never been accurately determined. There are various opinions regarding the type of ovens that bake the best bread. The significant point is that there is no one, either in the bak-



Gas-fired kiln at plant of Los Angeles brick company

ing industry or gas industry, who really knows whether the electric type ovens, the direct fired gas ovens, or some compromised type of oven are fundamentally the correct type which in other words means the ultimate type for baking bread.

There is another consideration in connection with this development and that is that this research fund is practically the only agency through which the baking industry can be approached nationally. The bakers, through their Institute and Association, operate to a large extent as a national organization. The bakers look to the Institute for that guidance which determines their trend of development. The A. G. A. research activities will enable the industry to become a rich factor and influence in this situation.

Large combination bakeries, such as the General Baking Company, which today regard gas as a substitute fuel, will automatically take a keen interest in the studies and development being effected through the Institute. They are large contributors to the support of the Institute.

As soon as the determinations of the best type of gas-firing for baking bread are made, this work will then be conducted in some representative bakery on a full size oven and tested out under shop conditions.

This somewhat detailed explanation of the fundamental principles which are being used is a guide toward achieving the objectives set in the work outlined. The same general principles, which exist in the baking industry, also apply in the other classifications. In brief, there are two divisions.

RESEARCH—under which would come: A—Studying the fundamental principles relative to the solution of the particular industrial problems by gas. B—Determinations and developments in conjunction with the research facilities of that industry.

DEVELOPMENT — under which would come: A—Study and testing improvements on the existing equipment. B—Proving out the improvements in practice by shop operation in typical plants.

Based on this conception, the accomplishments by classifications to date are, in addition to bread baking:

NON-FERROUS METALS

Studies are being made of the fundamental principles applying to the melting, heating and annealing of the non-ferrous metals. Arrangements have been made for the development work in the research laboratory of a large metal company at Waterbury, Conn. The non-ferrous metal crucible recuperative furnace which has proved to be the best type of gas furnace now available to the brass foundry is being remodeled and the results of each change carefully tested. The results of the changes in the crucible furnace will be applied to a brass foundry, in Newark, N. J., and carefully noted under shop conditions.

There are in the U. S. some 3,312 brass foundries, of which 1,421 devote themselves exclusively to this alloy and 1,891 represent plants which have a brass foundry as one of their departments.

Seventy-three per cent are located in 745 cities or towns where manufactured gas is supplied, 15 per cent in 214 cities or towns where natural gas is supplied, and the remainder, or 12 per cent, have no gas available.

The estimated annual output of these foundries is 300,000 tons and of the fuel consumed only about 1.6 per cent—from the calorific standpoint—is gas. Coal is used to the extent of 71.4 per cent, coke ten per cent and oil 17.1 per cent.

On this basis, it is calculated that should gas be used exclusively, it would require 2,400 million cu.ft. of manufactured and 270 million cu.ft. of natural gas annually. The present consumption is 40 million cu.ft. of the manufactured and 4½ million cu.ft. of the natural, leaving the potential annual gain for the man-

The loading end of a traveling gas oven installed in Toronto

ufactured gas as 2,360 million cu.ft. and for the natural gas 265½ million cu.ft.

FORGING

Study and investigation is now being conducted on the factors limiting the rate of heat on steel and other similar fundamental studies relating to forging. Several new types of burners have been constructed and certain effective changes in the construction of forging chambers have been worked out. Different types of forging furnaces are under construction for testing purposes. Arrangements are being made with a large forging company in Brooklyn, N. Y., for testing out the proved improvements under shop conditions.

HEAT TREATING

Studies are being conducted regarding the effect of atmospheres on the surface of steel on other relevant fundamental principles. Negotiations are now under way to utilize the facilities of one leading research agency in the country. The actual work on the heat treating furnaces is scheduled to begin after the more pressing classifications are better under way. The reason for this is that the activities of the Surface Combustion Company independent of this research fund, notably in large orders recently obtained from the automotive industry, is placing gas on a very firm standing in this classification.

DRYING

Certain principles of recirculation applying to drying ovens are being studied.

CERAMICS

A detail study of all the factors involved is being conducted. All further work on this classification is pending the completion of a direct fired automatic tunnel kiln, nearing completion in New Jersey.

The possibilities of gas in two branches of the ceramic field have been studied. These branches are enameling and pottery—i.e. chinaware, sanitary ware, floor and wall tile, electrical porcelain, and terra cotta.

In the enameling branch, gas furnishes about five per cent of the fuel consumed thereby, coal eighty-one per cent, coke five per cent and oil nine per cent—the volume of gas consumed being 1.6 billion cu.ft. annually. Should gas be used exclusively in those plants to which it is now available, it is calculated that the annual consumption would reach 30.6 billion cu.ft., a potential increase of twenty-nine billion cu.ft. annually—23.7 billion cu.ft. of manufactured gas distributed in seventy-one cities and 5.3 billion cu.ft. of natural gas distributed in twenty-eight cities.

Similarly, in the pottery branch, gas furnishes about twenty-two per cent of the fuel consumed, coal seventy-five per cent, coke less than one per cent, and oil about two per cent. This represents 10.2 billion cu.ft. of gas consumed annually. The annual consumption, should those plants which have an available supply of gas accept it as their fuel exclusively, would reach 44.2 billion cu.ft. This is a potential increase of thirty-four billion cu.ft. annually—twenty-four billion cu.ft. for manufactured gas distributed in eighty-six cities, and ten billion cu.ft. for natural gas distributed in sixty-six cities.

MISCELLANEOUS

There are a number of developments now under way which will have general applications such as improved firing systems for low temperature radiant heat applications, improvements in control both as applied to safety and as applied to the automatic temperature control.

Progress Committee Collecting Data

THE Progress Committee of the Industrial Gas Section is now organized to continue the collection of industrial fuel data. These data will be printed in the same form as the present data sheets that the Industrial Section is selling to the members.

Companies are requested to send data regarding industrial installations to Association Headquarters to aid in the dissemination of all helpful industrial gas information.

Association Hires Industrial Gas Writer

J. B. NEALEY, formerly connected with the Surface Combustion Company, New York, N. Y., has been hired by the Association to prepare articles for the trade publications and secure additional publicity on the various applications of gas in industry.

Mr. Nealey's work will be the amplification of the work formerly done by the Publicity Committee of the Industrial Gas Section, of which H. O. Andrew, New York, N. Y., is chairman.

Professor Ferris to Write Book on Selling

ELMER E. FERRIS, professor of salesmanship, New York University, N. Y., has been engaged to write a book on salesmanship for the industrial gas salesman. This is being sponsored by the committee on the Education of Salesmen, J. P. Leinroth, chairman.

Professor Ferris has been salesman for the Alexander Hamilton Institute, sales manager, Phenix Cheese Company, and vice-president of the Calumet Tea and Coffee Company. He is the author of "Developing Sales Personality," and "Pete Crowther, Salesman." He was a speaker at the 1926 course for industrial gas salesmen, offered by Mr. Leinroth's committee.

His book will be available at the convention in October, 1927.

Industrial Gas Section Approves 1927 Advertising

THE Industrial Gas Section has approved the advertising program in the industrial magazines for the year 1927. Practically the same media will be used this year as were used last year, the list including 21 trade papers and six college magazines.

The mat service for local companies will be continued also. Developed for the first time in 1926, this idea proved to be very successful, as it gave gas companies the opportunity of tieing in with the national program. The local advertisements were printed over the name of the company and appeared in the newspapers at the same time the national advertisements appeared in the magazines.

The large number of inquiries received in 1926 from interested readers of the trade and class publications prove that the campaign is successful.

How the Houston, Tex., Gas & Fuel Co. decorates its holders

COMMERCIAL SECTION

J. J. BURNS, Chairman G. M. KARSHNER, Vice-Chairman
J. W. WEST, Jr., Secretary

Mid-West Conference Great Success

Three-Day Meeting in Chicago Proves Especially Valuable to Sales People in Territory Covered

NEARLY five hundred gas salesmen and sales executives attended the first Mid-West Sales Conference held in Chicago, Ill., February 16, 17, and 18. The program dealt specifically with the sales methods which have proved successful in the territory covered by the conference; namely: The states of Illinois, Indiana, Michigan, Iowa, Minnesota, Missouri, and Wisconsin.

The chief trend in sales methods as indicated by the speeches delivered at the conference and the resulting discussions were methods of compensating employees for prospects and sales, the advisability of offering the customer free trial for a short period, need of promotional rates from the commercial standpoint, and intensive sales organization and supervision including various kinds of campaigns and contests. The advisability of interesting home builders when actually building was brought out, as was also the necessity for emphasizing the comfort and convenience factors rather than appliances themselves. This was well expressed by one speaker as selling what an appliance does rather than what it is.

A feature of the meetings was the full discussion that followed each topic presented by the speakers. Ample time had been allowed for this purpose, and many salient points were brought out by those taking part.

The address of welcome was delivered by Samuel Insull, Jr.

Among the speakers who covered the various subjects were: F. C. Mackey and W. F. Miller, Public Service Company of Northern Illinois; J. F. Jones, Battle Creek Gas Co., Battle Creek, Mich.; Geo. Klopf, North Shore Gas Company, Chicago, Ill.; B. H. Gardner, Northern Indiana Public Service Co.; J. T. Hammeck, The Laclede Gas Light Co.; St. Louis, Mo.; C. A. Luther, The Peoples Gas Light and Coke Co., Chicago, Ill.; R. O. Jasperson, The Milwaukee Gas Light Co.; R. J. Canniff, chairman, A. G. A. Blue Star Committee, Chicago, Ill.; P. D. Warren, The Peoples Gas Light and Coke Co.; J. J. Burns, The Laclede Gas Light Co., St. Louis, Mo.; G. C. Carnahan, The Peoples Gas Light and Coke Co.; S. C. Reiser, The Laclede Gas Light Co.; A. W. Baker, Kansas City Gas Co.; and M. F. North, Public Service Co. of Northern Indiana, Hammond, Ind.

Refrigeration—A Challenge

(Continued from page 149)

by the owner would be first-class prospects. Apartment houses, stores and institutions should be included.

Advertising—both newspaper and direct-by-mail—window displays and demonstrations should be used extensively. Cooperation with the dealers is necessary and would be of advantage. Gas refrigeration should be sold on the deferred payment plan, for a period of from one to two years, or longer if necessary.

Only the united support of the gas industry will insure the success of gas refrigeration. That support must be forthcoming now.

Sales Executives

THE Commercial Section of the American Gas Association is developing a sales manual for use by all member companies. The committee in charge would appreciate it if the companies that have local sales manuals in use would send a copy to J. W. West, Jr., secretary of the Commercial Section, A. G. A. Headquarters.

What Technical Section Is Doing

(Continued from page 166)

other fields gas can be used to economic advantage. It involves not only a question of cost in competing with other fuels, but also has to deal with special applications of gas to certain specific processes in which other fuels cannot be used. The chemical composition of gas may prove of great value in its application to industrial uses. There is certainly a great deal to be done in the way of improving the efficiency of industrial appliances, involving a study and use of regenerative and recuperative furnaces. There is also a field for application of high pressure gas in heat process work, thereby eliminating the necessity of compressed air supply.

There is no doubt but that progress has been made along the lines of industrial application of gas, but there is room for definite improvement not only in existing fields, but also in new fields. The industry sorely needs the development of automatic heat treating machinery, for all sorts of heat treatment of all sorts of metals. This will involve the expenditure of large sums of money, but in the long run it will materially reduce production costs.

Careful study and analysis will show what there is of value in this field and how the gas industry must prepare itself to meet these various problems.

There are many industries which operate to take care of seasonal variations in trade. They manufacture commodities during the off-peak season in their business, getting ready for large demands when the commodities are actually sold to the ultimate consumer. This point is illustrated by the Christmas toy business, ice-cream cone business, brick manufacturing and many others.

In the brick-making industry for example, off-peak rates can be made to encourage this class of business, because bricks can be burned and stored very easily to take care of seasonal building operations. Any rate which leaves a margin of profit for the gas company over operating costs can be justified because this load comes at a time when part of the manufacturing equipment would otherwise be idle.

Careful studies should be made of all industrial applications to see where gas can be utilized in off-peak or seasonal business, and sufficiently attractive rates should be made so that manufacturers can use gaseous fuel to their advantage.

RATES

This subject should be carefully studied and analyzed from the standpoint of giving the consumer the most for his money and the investor in public utility securities a fair return, with assurance that the return will be properly protected, in order that he may be induced to invest in the undertaking.

The electric industry has spent a great deal of time and money in developing load factor to the high point it has now attained. And its form of rate structure has greatly aided that development. Even in the electrical industry, however, the rate structure is such that many consumers are served at a loss—and these deficits must of necessity be loaded on the profitable consumers. In the past, political expediency has been stressed too much in consideration of a proper rate structure to apply to the small consumer. Analyses have been made which indicate the small consumer is not the laboring man with a large family, but in many cases the professional office, cigar stands, jewelers and places where gas is used for convenience and not in quantity, at which places they are amply able to pay and should pay for all the service properly costs. Further careful analyses should

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TECHNICAL SECTION
WALTER C. BECKJORD, Chairman HARRY E. BATES, Vice-Chairman
H. W. HARTMAN, Secretary

Distribution Conference to Attract Many

Record-breaking Attendance Expected at Baltimore on April 4 and 5, Because of Excellent Program

THE fourth annual Distribution Conference will be held April 4 and 5 at Hotel Belvedere, Baltimore, Md., under the auspices of the Technical Section of the American Gas Association. To the distribution men this annual event has assumed an importance second only to that of the annual convention of the Association. Sixty per cent of the gas industry's investment may be in its distribution system; surely sixty per cent of its troubles are located there.

To the men who must shoulder the responsibility of conceiving, operating, and adjusting these systems to the service demands of our customers, these conferences are of the greatest importance. Because the technical aspects of the gas industry are so complex and comprehensive, and because the work of the Section falls into so many classifications, when in convention assembled it is manifestly impossible to give suitable and adequate attention to the detailed problems of each part of the work. These conferences, by permitting ample discussion and intense study of all problems of interest to the distribution men, are proving more attractive each year.

The success of the past Distribution Conferences is indicative of the success of the fourth one. Special features will be on the program, to attract distribution engineers from all parts of the country. The subjects to be considered, as outlined in the program announced by C. C. Simpson, Jr., chairman of the Distribution Committee and general superintendent of mains and services for the Consolidated Gas Company of New York, are comprehensive and give due consideration to the varying problems that are met in all sections.

One of the features will be the open forum, to be held the afternoon of April 5. At this all members will be able to introduce subjects not covered in the program on which they desire discussion. This will probably be one of the most practical and result-producing sessions of all, because it will enable each man to bring before the Conference the specific problem in which he is most interested. In reality, the men attending will dictate the program of the afternoon. The result will be that only problems that are especially pertinent will be brought up.

The afternoon session on the fourth will also prove to be of more than casual interest. H. K. Logan, of the United States Bureau of Standards, will present a special report on the Bureau's investigation of soil corrosion.

Three of the papers scheduled for presentation deal with problems that were assigned to the Distribution Committee by the Committee on the Economic and Engineering Survey of the Gas Industry. These papers will be in the nature of progress reports, and will show how the Section is carrying out its part in the development program that was suggested by the Three- to Five-Year Program Committee last year. These papers will deal with the following subjects: The economics of long distance high pressure transmission of gas, supplying concentrated areas in outlying districts of the distribution systems, and the various phases of the problem that the house heating load brings to the distribution

man. The men who will present these papers are, respectively: F. A. Lydecker, assistant general superintendent of distribution, the Public Service Electric and Gas Co., Newark, N. J.; O. S. Hagerman, assistant engineer, American Light and Traction Co., New York, N. Y.; and M. I. Mix, superintendent of pressure department, The Peoples Gas Light and Coke Co., Chicago, Ill.

Mr. Simpson has announced that arrangements have been made with the Bureau of Standards to have on exhibition at Washington the specimens of pipe as taken out of various soils in the Bureau's investigation of soil corrosion. It is expected that most of the members attending the Conference will go to Washington to inspect this exhibit. The Committee will keep the members posted as to train schedules, etc.

Mr. Simpson has announced a tentative program as follows:

MONDAY, APRIL 4—10:15

"Economics of Long Distance High Pressure Transmission," by F. A. Lydecker, assistant general superintendent of distribution, The Public Service Electric and Gas Co., Newark, N. J.

"Pipe Joints," by J. D. von Maur, superintendent of distribution, Consumers Gas Co., Toronto, Ont., Canada.

MONDAY, APRIL 4—2:00

"Pipe Coatings," by J. K. Crowell, superintendent, Westchester Lighting Co., Yonkers, N. Y.

"Report To Date on Soil Corrosion Investigation of Bureau of Standards," by H. K. Logan, Bureau of Standards, Washington, D. C.

"Supplying Concentrated Areas in Outlying Districts of Distribution Systems," by O. S. Hagerman, assistant engineer, American Light and Traction Co., New York, N. Y.

"Pipe Materials," by E. S. Umstead, superintendent of distribution, Providence Gas Co., Providence, R. I.

TUESDAY, APRIL 5—10:00

"How Shall We Take Care of the House Heating Load?" by M. I. Mix, superintendent of pressure department, The Peoples Gas Light and Coke Company, Chicago, Ill.

"New Developments in Power Machinery for Distribution Work," by F. M. Goodwin, vice-president and engineer of distribution, The Boston Consolidated Gas Co., Boston, Mass.

"Meters—Industrial and Domestic," by Geo. A. Lane, superintendent of meters, The Peoples Gas Light and Coke Co., Chicago, Ill.

TUESDAY, APRIL 5—2:00

Open Forum: The entire afternoon will be devoted to a discussion of distribution problems. No papers or summaries have been prepared for presentation at this session, and only problems that the members bring up will be discussed.

WEDNESDAY, APRIL 6

Washington, D. C.—Inspection of specimens of pipe in soil corrosion investigation by Bureau of Standards.

Members who contemplate attending this Fourth Distribution Conference are urged to make their hotel reservations at once direct to the Hotel Belvedere manager. The rates are: room, without bath, with hot and cold running water, double bed, one person, $3.00; two persons, $5.00. Room, with private bath, double bed, one person, $5.00, two persons, $7.00.

The executive committee in charge of the Distribution Conference is as follows: C. C. Simpson, Chairman, Consolidated Gas Co. of N. Y., 130 East 15th St., New York, N. Y.; J. K. Crowell, Westchester Lighting Co., 45 S. Broadway, Yonkers, N. Y.; Walton Forstall, The United Gas Improvement Co., Broad & Arch Sts., Philadelphia, Pa.; R. S. Fuller, Pacific Gas & Electric Co., San Francisco, Cal.; F. M. Goodwin, Boston Consolidated Gas Co., Boston, Mass.; R. G. Griswold, H. L. Doherty & Co., 60 Wall St., New York, N. Y.; Wm. Lawton, Jr., Department of Public Utilities, Richmond, Va.; F. A. Lydecker, Public

Service Electric & Gas Co., 80 Park Place, Newark, N. J.; M. I. Mix, The Peoples Gas Light & Coke Co., 122 South Michigan Ave., Chicago, Ill.; D. A. Powell, Muskegon Traction & Lighting Co., Muskegon, Mich.; E. S. Umstead, Providence Gas Co., Providence, R. I.; J. D. von Maur, Consumers Gas Co. of Toronto, 19 Toronto St., Toronto, Ont., Canada.

England Shivers

THE recent coal strike in England was a hard blow to the literary group. George Bernard Shaw was not affected. He heated his rooms with gas, but Sir James Barrie, it is said, was forced to move into a smaller work room than he had been using so that less fuel would be required for heating.

An excuse for a trip to the United States was given by Denis Mackall, the novelist. He said, "My coal supply in the cellar has dwindled to a scuttleful, and I am off to New York for a real hot bath."

First Production Conference Announced

Meeting to Be Held at Detroit, Mich., May 31 and June 1; Interesting Program to Be Presented

By R. G. PORTER
Chairman, Joint Committee on Production Conference

THE first Production Conference to be given under the auspices of the Technical Section of the American Gas Association will be held at Detroit, Mich., May 31 and June 1.

Many engineers and chemists connected with the production end of our business have felt for sometime the need of an opportunity to discuss the problems confronting them in greater detail than it is at all possible to at the fall convention of the American Gas Association. Walter C. Beckjord, Chairman of the Technical Section, suggested to the Carbonization Committee and Water Gas Committee that a Production Conference might be arranged to afford this opportunity for more ample discussion. These two committees unamimously accepted the idea as well worth while and meeting a real demand. The thought was brought out that all interested chemists and, in fact, all men connected with the production end of the business would be welcome at the Conference.

The Program Committee that was appointed has already canvassed the membership of the two production committees mentioned for suggestions as to topics for discussion and scope of the conference. In the near future all production divisions of the company members of the A. G. A. will receive more detailed information regarding the program.

The members of this committee are most anxious that executives appoint as many men as possible from their production division to attend the conference, and more especially the men who may not be able to go to the fall convention on account of the attendance of their immediate superiors there.

Detroit has been chosen as it is practically the most central city possible to select and a large attendance is most likely. No one is expected to attend the conference who is not sufficiently interested to take part in the actual discussion of one or more divisions of the program.

There will not be a printed report of the discussion, which, it is expected, will be the most valuable feature of this Conference. Attendance is therefore imperative to derive the full benefit of the Production Conference to be held May 31st and June 1st in Cleveland.

What Technical Section Is Doing

(Continued from page 186)

be made to demonstrate this point. It would seem wise for the gas industry to think more in terms of cost of service, load factor, and proper rate structure. There will be tremendous valleys in the load curve to fill in resultant from house heating business. Careful and intensive study should be made of a proper off-peak rate structure to develop this class of business.

House heating business can undoubtedly be developed in some localities to much better advantage than in others, depending on climatic conditions, but of necessity house heating by gas will always cost more than with raw fuel. Its greater convenience and cleanliness will be the dominating factor. The A. G. A. has issued a pamphlet on "Prize Plans" prepared for architects and builders, in which the subject of house heating by gas is covered very well.

The natural gas people feel quite logically that the manufactured gas industry does not really comprehend what peak loads are as yet. The situation in Cleveland is typical, where the maximum day's sendout is in excess of 250,000,000 cu.ft. In Detroit the maximum day's sendout is about 75,000,000 cu.ft. or only 30 per cent of Cleveland's sendout.

The total gas sold in Cleveland District in 1925 was about 41,000,000,000 cu.ft. and in Detroit 18,490,000,000 cu.ft., which is 45% of Cleveland's sales. Detroit has very large industrial sales due to the concentration of automobile industry there, but in spite of that the sales per consumer were only 60,000 cu.ft. per year as compared to 100,000 cu.ft. per year in the Cleveland District.

The sales per consumer on the maximum sendout day were approximately 600 cu.ft. in the Cleveland District and 240 cu.ft. in Detroit.

Los Angeles is another city where the house heating load is tremendous and it is necessary there to keep whole batteries of oil gas machines in readiness to augment the supply of natural gas in taking care of peak loads.

This is clear cut evidence of the effect of the house heating peak, and brings home forcibly to the executives and engineers, the problems that must be taken care of in the future as this business develops.

It will be seen that the manufactured gas industry has many of its large problems ahead of it. Undoubtedly there are industries which can utilize gaseous fuel at certain periods of the year and shut down during the time of peak demand. This principle is already recognized in the natural gas industry.

As a general proposition the rates for natural gas are lower than for manufactured gas and this fact naturally has been a factor in the development of their business. Higher rates for manufactured gas have necessarily kept it out of some fields of utilization where natural gas is used, but it must be recognized that the supply of manufactured gas is continuous, whereas, in some localities the natural gas supply is not, due to physical limitations and the rate structure reflects this condition. In the natural gas industry, many of the small consumers are exceedingly unprofitable, and efforts are being made to correct this condition.

It is quite evident to anyone who has studied carefully the problems of the gas industry, that it is still in the development stage, and that it will make progress and attain results only in proportion to the efforts put forth by the men of the industry. Everyone in the industry must put his shoulder to the wheel and concentrate his thought on constructive plans for the future.

In the last analysis the industry must be founded on economic bases and every effort should be made to get the most out of a dollar invested, and the dollar spent for operation, in order to give the best possible service to the ultimate consumer at the least possible cost.

Associations Affiliated with A. G. A.

K. R. Boyes, Secretary

Canadian Gas Association
Pres.—J. J. Armstrong, Consumers Gas Co., Toronto, Ont.
Sec.-Tr.—G. W. Allen, 7 Astley Avenue, Toronto.
Conv., June, 1927.

Empire State Gas and Electric Association
Pres.—H. M. Brundage, Consolidated Gas Co. of New York, New York, N. Y.
Chairman Gas Section—J. E. Cooper, Utica Gas & Electric Co., Utica, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
Conv., Lake Placid Club, Lake Placid, N. Y., Oct. 6 & 7, 1927.

Illinois Gas Association
Pres.—W. A. Bertke, Illinois Power & Light Corp., East St. Louis, Ill.
Sec.-Tr.—R. V. Prather, 305 Illinois Mine Workers Bldg., Springfield, Ill.
Conv., Springfield, Ill., March 17 & 18, 1927.

Indiana Public Utility Association—Gas Section
Pres.—E. Van Arsdel, 1100 J. F. Wild Bldg., Indianapolis, Ind.
Sec.-Tr.—E. J. Burke, Room 1270, Peoples Gas Bldg., Chicago, Ill.
Conv., French Lick Springs Hotel, French Lick, Ind., May 19, 20, 21, 1927.

Michigan Gas Association
Pres.—C. R. Henderson, Washtenaw Gas Co., Ann Arbor, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Conv., Grand Hotel, Mackinac Island, Mich., July 5, 6, 7, 1927.

Mid West Gas Association
Pres.—Frank S. Edge, Peoples Light & Fuel Co., Grinnell, Iowa.
Sec.-Tr.—H. R. Sterretf, 551 Seventh St., Des Moines, Ia.
Conv., St. Paul Hotel, St. Paul, Minn., April 21 & 22, 1927.

Missouri Association of Public Utilities
Pres.—F. S. Dewey, Kansas City Power and Light Co., Kansas City, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
Conv., Cape Girardeau, Mo., May 5, 6, 7, 1927.

New England Gas Association
Pres.—William Gould, Gas and Electric Improvement Co., Boston, Mass.
Acting Secretary—E. A. Taylor, 100 Weybosset St., Providence, R. I.
Pres. Operating Div.—G. Warren Stiles, Portland Gas Light Co., Portland, Me.
Sec.-Tr. Operating Div.—F. E. Drake, Lynn Gas & Electric Co., Lynn, Mass.
Pres. Sales Div.—M. B. Webber, Marlboro-Hudson Gas Co., Boston, Mass.
Sec.-Tr. Sales Div.—J. H. Sumner, 719 Massachusetts Ave., Cambridge, Mass.
Pres. Industrial Div.—R. J. Phelan, Worcester Gas Light Co., Worcester, Mass.
Sec.-Tr. Industrial Div.—J. J. Winn, Jr., Fall River Gas Works Co., Fall River, Mass.
Conv., 1928.

New Jersey Gas Association
Pres.—L. N. Yetter, Atlantic City Gas Co., Atlantic City, N. J.
Sec.-Tr.—Louis Stoecker, Public Service Electric & Gas Co., Newark, N. J.
Conv., Bellevue-Stratford Hotel, Philadelphia, Pa., April 7, 1927.

Oklahoma Utilities Association
Pres.—J. A. Frates, Oklahoma Union Railway Co., Tulsa, Okla.
Mgr.—E. F. McKay, Oklahoma City, Okla.
Conv., Huchins Hotel, Oklahoma City, Okla., March 8, 9, & 10, 1927.

Pacific Coast Gas Association
Pres.—W. S. Yard, Pacific Gas & Electric Co., San Francisco, Calif.
Exec. Sec.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.
Conv., Santa Cruz, Calif., Sept., 1927.

Pennsylvania Gas Association
Pres.—Allyn C. Taylor, Consumers Gas Co., Reading, Pa.
Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
Conv., Bellevue-Stratford Hotel, Philadelphia, Pa., April 6, 1927.

Southern Gas Association
Pres.—A. E. Merchant, New Orleans Public Service, Inc., New Orleans, La.
Sec.-Tr.—J. P. Connolly, 141 Meeting St., Charleston, S. C.
Conv., Biltmore Hotel, Atlanta, Ga., April 19, 20, 21, & 22, 1927.

Southwestern Public Service Association
Pres.—H. E. Borton, Mineral Wells Electric Co., Dallas, Texas.
Chairman Gas Section—C. K. Fletcher, Fort Worth Gas Co., Fort Worth, Texas.
Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.
Conv., Hotel Roosevelt, New Orleans, La., April 26-29, 1927.

Wisconsin Utilities Association
Pres.—John St. John, Madison Gas & Electric Co., Madison, Wisc.
Exec.-Sec.—J. N. Cadby, 445 Washington Bldg., Madison, Wisc.
Conv., 1927.

Geographic Divisions

Eastern States Gas Conference
Pres.—S. P. Curtis, American Gas Co., Philadelphia, Pa.
Sec.-Tr.—J. C. Smith, Consumers Gas Co., Reading, Pa.
Conv., Bellevue-Stratford Hotel, Philadelphia, Pa., April 7 & 8, 1927.

Ninth Annual Convention of the American Gas Association
Chicago, Ill. Stevens Hotel Oct. 10-14, 1927

Employment Bureau

(Address All Communications to Key Number)

SERVICES REQUIRED

WANTED by large gas company in middle west, salesman for industrial gas appliances. Address A. G. A.
Key No. 073.

WANTED—A fast growing Gas Syndicate operating a number of Gas Companies desires the services of an experienced gas appliance solicitor. Only trained and experienced men with good references need apply. A good opportunity for a live, wide-awake salesman. Address A. G. A.
Key No. 079.

SALESMEN—Large Public Utility Company operating in Central New York and many other states, desires to employ several securities salesmen to sell company securities. Excellent opportunity. State salary, age, experience, married or single. Address A. G. A.
Key No. 080.

INDUSTRIAL GAS SALES REPRESENTATIVE: Gas company in a Middle Atlantic State has an opening for a technical college graduate, with fundamental knowledge of application and combustion of various fuels, to sell gas for industrial uses. Must be capable of making plant surveys of heat applications. State age, education, experience and salary desired. Address A. G. A.
Key No. 085.

SALESMAN—Chiefly for gas-fired steam radiators, also other gas appliances to work in New York City. One acquainted with plumbing and heating trade preferred. Salary and commission basis. Address A. G. A.
Key No. 094.

A PROGRESSIVE Gas Company in Mass. has an opening in its Industrial Gas Engineering Department for a Technical College Graduate to sell gas for industrial uses. State age, education, experience, and salary desired. A fine opportunity for the right young man. Address A. G. A.
Key No. 095.

SHOP FOREMAN—Wanted by Company operating in the Metropolitan District of New York City. 25,000 Meters. Must be thoroughly familiar with all classes of work on consumers' premises, industrial appliances, routing and transportation. Give age, experience and compensation desired. References will be considered confidential if requested. Address A. G. A.
Key No. 097.

INDUSTRIAL GAS ENGINEER wanted by large gas company operating in middle west. Write, giving age, experience, and qualifications. An opportunity for the right man. Address A. G. A.
Key No. 0100.

BY LARGE CORPORATION AFFILIATED WITH THE GAS INDUSTRY—A young man with pleasing personality and knowledge of the fundamentals of gas manufacture, to make contacts with gas company officials. Large amount of traveling necessary. Address A. G. A.
Key No. 0101.

SERVICES OFFERED

WANTED—Position as Gas Engineer or Superintendent of property serving 30,000 or more meters. Fifteen years' experience in high and low pressure distribution, coal and water gas production. Address A. G. A.
Key No. 211.

TECHNICAL MAN now employed as superintendent and industrial gas engineer desires new location. Thirty-six years of age. Fourteen years' experience in coal and water gas manufacture, sales and distribution. Services available upon reasonable notice to present employer. Address A. G. A.
Key No. 217.

AGGRESSIVE COMMERCIAL MANAGER—34 years of age, available October or November. Thoroughly familiar, Industrial, Commercial and Domestic Sales Promotion. Address A. G. A.
Key No. 220.

COMBUSTION SALES ENGINEER with executive ability to organize and operate an efficient industrial sales department, capable of putting over large industrial operations. Thorough knowledge of solid, liquid and gaseous fuels from a practical and theoretical standpoint, having made surveys in over one thousand industries during the past seventeen years of industrial plant engineering. Broad experience in a very extensive variety of heating operations including the design of large heating furnaces and gas burner equipment. Also contributed a great deal to the development of house-heating, able to create splendid public relations. Technical graduate. High class references. Address A. G. A.
Key No. 221.

ACCOUNTANT and Office Manager with wide experience in management, purchasing and all office details. Address A. G. A.
Key No. 223.

POSITION wanted as Superintendent of small gas company or as General Foreman of large plant. Approximately seventeen years' experience in all branches of manufacture and distribution, high and low pressure systems. Address A. G. A.
Key No. 224.

A MAN 31 years of age and married seeks admission in the Gas or an affiliated industry on possession of the following qualifications. A knowledge of the fundamentals of Gas making. A quite thorough theoretical and practical knowledge of Combustion. A close aquaintance among the officials of a majority of the Central Stations of the East. A background of eight years' experience in Sales Management and Supervision in both the Wholesale and Retail Coal Business. One year's experience in the management of the Sales Distribution and Installation work of an Oil Burner. A natural leaning toward legitimate promotion and its accompanying contact work. Desirable references as to Character, Personality and Ability. Address A. G. A.
Key No. 225.

POSITION as manager of small gas or combination gas and electric property or as commercial manager of a larger property by a man thoroughly reliable with wide experience and a record for producing results. Address A. G. A.
Key No. 226.

CHEMICAL ENGINEER—with 7 years' experience in the testing and developing of different classes of gas appliances also familiar with the testing and utilization of natural gas and manufactured gas—A-1 references. Address A. G. A.
Key No. 227.

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